Hellenic Diaspora Medical Forum

HDMF

- Corpus -

THESSALONIKI 2019

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Hellenic Diaspora Medical Forum (HDMF)

The School of Medicine, Aristotle University of Thessaloniki initiates the HDMF integrated to its strategic plan of collaborating with other Universities as well as with the industry and the open market. The HDMF aims to take advantage of the eminent Greek Professors of USA and UK who have been awarded of Doctor Honoris Causa by the School of Medicine, Aristotle University and launch a close cooperation with them as Ambassadors of their Universities so as to create a network between our Schools regarding research, educational, scholarships, fellowships, administrative, professional activity and connection with the industry. The Forum will be organized under the auspices of the American Chamber of Commerce and the Pan-Hellenic Union of Pharmaceutical Industry. The School of Medicine, Aristotle University will ask to attend the HDMF with initiatives, proposals, projects and various forms of collaboration all the stakeholders of the relevant activities, such as: the Rectorate Authorities and the Research Committee Aristotle University of Thessaloniki, its relevant Faculties and Schools (i.e. the Schools of the Faculty of Health Sciences, the Schools of the Faculty of Engineering, the School of Biology), research organizations (Center for Interdisciplinary Research and Innovation of the Aristotle University, The Centre for Research and Technology - Hellas, the Hellenic Foundation for Research and Innovation, The Biomedical Research Foundation of the Academy of Athens, The General Secretariat for Research and Technology, etc), Foundations (Niarchos, Onassis, Bodosakis, Latsis, Papageorgiou, etc), Governmental authorities (Ministry of Health, Ministry of Education, Prefecture of Central Macedonia, General Secretariat for Greeks Abroad, Municipality of Thessaloniki, State Scholarships Foundation , etc), productive organizations (i.e. the Union of Greek Ship-owners), representative from the industry (American Chamber of Commerce, Pan-Hellenic Union of Pharmaceutical Industry), diplomats (USA, UK), the research group of IBM and the American College of Surgeons.

The scopes of this initiatives are: the direct communication and collaboration of the School of Medicine, Aristotle with other Schools of USA and UK, the enhancement of mobility of undergraduate and postgraduate students, Professors as well as administrative staff, the exchange of views and protocols for implementing novel educational, clinical and administrative programmes, the facilitating and granting scholarships and fellowships and any form of bidirectional visits, collaboration to research forming consortia, groups, spin-off companies and other initiatives, the co-organization of educational undergraduate, postgraduate as well as clinical programmes and the overall communication and the networking of the University with the industry and the open market internally and abroad.

Aristotle University of Thessaloniki

Aristotle is the largest University in Greece as well as in the Balkans covering all disciplines. It is widely recognized as a vibrant center of learning which draws its inspiration from a long tradition of academic achievement. This can be supported, among other factors, by the fact that so much in science, as in the arts and divinity, medicine and technology, it prides itself in its international role. Most of its academic personnel have been trained in reputable Universities in Europe, the United States and as far afield as Australia and Japan. The University has been actively participating in the Erasmus Programme since 1987, accounting approximately one fourth of the total Erasmus mobility in Greece in the frame of Student for Studies Mobilities as well as Staff for Teaching Mobilities.

Nevertheless, mindful of rapid change and progress, Aristotle University aims to improve its strategy, policies and everyday practices, in order to meet contemporary local and global demands. By assessing its experience, the University has been able to determine its strengths and weaknesses, and it has adopted a holistic internationalization strategy, the main objectives of which can be briefly described as follows:

- strengthen its role in the European and international knowledge community by building upon collective and personal academic achievements,
- enhance its visibility among the traditionally prestigious academic institutions all over the world, by establishing long-term cooperation schemes at research, education and training level,
- reinforce its traditional presence as leading education and research institution in Southeastern Europe and Eastern Mediterranean, by building focused strategic partnerships in the area,
- play a decisive role in academic exchange, good practices dissemination, and knowledge diffusion,
- support multicultural co-existence, social and cultural cohesion, and promote sustainable regional development,
- make multilateral, rather than unilateral approach, a core aspect of our work in education, research and administrative level,
- make its graduates able to think and act across traditional academic boundaries and across national borders; properly equip them so that they may benefit from international knowledge and experience and support national and local dynamic development,

- take into consideration global market demands and adjust respectively our educational policies,
- enhance its cooperation with commercial enterprises abroad in terms of internship offers in order to improve our students' international employability,
- enhance and reinforce its relation with Greek society.

For these scopes, the Aristotle University supported strongly the Department of International Relations and the Department of European Educational Programmes, which are responsible for enhancing, organizing and maintaining good relations between the University and the international academic community, as well as for promoting the University abroad, with the aim to reinforce cooperation and communication in the field of teaching and research.

The above goals are met by participating in International Organizations, Unions and University Networks, coordinating and implementing Bilateral Agreements between the Aristotle University and Universities all over the world, as well as by implementing the European Policy of the Aristotle University of Thessaloniki through the Erasmus+ programme and various other European Educational Programmes (Erasmus Mundus, Erasmus+ International etc.).

The Aristotle University of Thessaloniki is a member of the following Organizations, Unions, and University Networks:

- IAU - International Association of Universities (www.unesco.org/iau)
- EUA - European Universities Association (www.eua.be)
- CMU - Community of Mediterranean Universities (www.cmungo.org)
- EAIE - European Association for International Education (www.eaie.org)
- ESMU - European Center for Strategic Management of Universities (www.hit.ac.il/sites/en/iris/partners/european-partners/esmu)
- Balkan Universities Network (https://www.auth.gr/sites/default/files/Protocol_Balkan.pdf)
- EMUNI - Euro-Mediterranean University (www.emuni.si)
- European University Center at Peking University (www.pku-euc.org)
- EUPRIO - European Universities Information & Relations Office (www.euprio.eu)
- Utrecht Network (www.utrecht-network.or)
- European Language Council (www.fu-berlin.de/elc/en)
- EAN - European Access Network (www.ean-edu.org)
- World Association for the History of Veterinary Medicine (www.wahvm.umn.edu)
- TIME - Top Industrial Managers for Europe

(www.ecp.fr/lang/en/home/International_Relations/International_Dev...)

- TII - Technology Innovation International (www.tii.org)
- ERA-MORE - European Network of Mobility Centers (http://sciencecareers.sciencemag.org/career_magazine/previous_issues/art...)
- QUALITY NET FOUNDATION (www.qualitynet.gr)
- A.D.E.E. - Association for Dental Education in Europe (www.adee.org)
- C.I.P.A. - International Scientific Committee for Documentation of Cultural Heritage (http://cipa.icomos.org)
- E.E.G.E.C.S. - Network on European Education in Geodetic Engineering, Cartography and Surveying (http://tuningacademy.org/eegecs-geodetic-engineering-cartography-surveyi...)
- CESAER - Conference of European Schools for Advanced Engineering, Education and Research (www.cesaer.org)
- SEFI - Société Européenne pour la Formation des Ingénieurs (www.sefi.be)
- Network of Excellence. New Global Migration Flows and European Institutional Response (www.hsuniversityprograms.org/centers-of-excellence-network)
- E.C.P.R. - ESU European Consortium for Political Research- European Summer University (www.essex.ac.uk/ECPR/events/summerschools/ESU_report.aspx)
- ELIA - European League of Institutes of the Arts (www.elia-artschools.org)
- TREE - Teaching and Research in Engineering in Europe (www.seii.org/seii/documents_seii/archives/colloques/TREE-Maffioli...)
- RMEI – Réseau Méditerranéen des Écoles d'Ingénieurs (www.rmei.info/index.php/en)
- ATHENS Network (http://db.intersek.ntnu.no/athens/main)
- ELC/CEL - European Language Council / Conseil Européen pour les Langues (www.celelc.org)
- AUF - Agence Universitaire de la Francophonie (www.auf.org)
- International Geothermal Center (www.geothermie-zentrum.de)
- TETHYS Euro-Mediterranean Universities Consortium (http://tethys.univ-amu.fr/fr)
- RURSE - Regional Unit for integrated risk and security Management for South East Europe (www.gmes-bg.org/rurse/index_en.php)
- CHERNE Network - Cooperation for Higher Education on Radiological & Nuclear Engineering (www.upv.es/cherne)
- Paul Ehrlich MedChem Euro-Phd Network (www.pehrlichmedchem.eu)

- SEENET - MTP- Southeastern European Network in Matematical and Theoritical Physics (www.seenet-mtp.info)
- NeSS - Pontignano Sustainability Institute - Siena Sustainability Network (www.unisi.it/nesso)
- UNITOWN - University Town Network, University of Ferrara - Italy (www.unife.it/international/networks/unitown-1/unitown)
- CUAM - University Consortium Africa and Mediterranean (www.cuam.eu)
- BSUN - Black Sea Universities Network (www.bsun.org)
- COST - European Cooperation in the field of Scientific and Technical Research (www.cost.eu)
- EUNIS - European University Information Systems Organization (www.eunis.org)
- EJTA - European Journalism Training Association (www.ejta.eu)
- ENEN - European Nuclear Education Network (www.enen-assoc.org)
- ECTN - European Chemistry Thematic Network (http://ectn-assoc.cpe.fr)
- Magna Charta Observatory (www.magna-charta.org)
- European University Foundation - Campuis Europaw (www.campuseuropae.org)
- ASECU - Association of Economic Universities of South and Eastern Europe and the Black Sea Region (www.asecu.gr/index.html)
- Student Chapter of the Society of Economic Geologists at AUTh (www.segweb.org/SEG/_Students/Student_Chapters.aspx)
- EAEVE - European Association of the Establishments for Veterinary Education (www.eaeve.org/about-eaeve/mission-and-obgectives.html)
- EUGENE - EUropean and Global ENgineering Education (www.eugene.unifi.it)
- ICLARS (www.iclars.org)
- Society for the Law of the Eastern Churches (www.univie.ac.at/recht-religion/grok/en/profil.html)
- Consociatio Internationalis Studio luris Canonici Promovento (www.consociatio.org)
- IUFRO - International Union of Forest Research Organization (www.iufro.org)
- EUFORGEN - European Forest Genetic Resources Network (www.euforgen.org)
- IFLA - International Federation of Library Associations and Institutions (www.ifla.org)
- LIBER - Association of European Research Libraries (www.tuc.gr/2473.html)
- AESOP - Association of European Schools of Planning (www.aesop-youngacademics.net)
- ALERT – Geomaterials; Alliance in Europe for Education Research and Technology (http://alertgeomaterials.eu)

- AECEF - Association of European Civil Engineering Faculties (http://kps.fsv.cvut.cz/aecef)
- Water Footprint Network (http://waterfootprint.org/en/about-us/network/regular-partners)
- Greek National Network SDSN – Greece (www.unsdsn.gr)
- BSEMAN - Black Sea & Eastern Mediterranean Academic Network (www.auth.gr/news/press/25531)
- Scholars' at Risk Network (www.scholarsatrisk.org)
- UNWTO - World Tourism Organization (www2.unwto.org)
- The Silk and The Road Universities Network (www.sun-silkroadia.org/eng/main/main.php)
- Giovani nel Mondo (www.giovaninelmondo.org)

Moreover, the Aristotle University of Thessaloniki is a member of the following Student Unions:

- HelMSIC - Hellenic Medical Students' International Committee (www.helmsic.gr)
- A.I.E.S.E.C. - Association Internationale des Etudiants en Sciences Economiques et Commerciales (www.aiesec.org)
- IAESTE - The International Association for the Exchange of Students for Technical Experience (www.iaeste.org)
- B.E.S.T. - Board of European Students of Technology (www.best.eu.org)
- AEGEE - European Students Forum (www.aegee.org)
- ACM (http://tosn.acm.org)
- ELSA (http://elsa.org/about/elsa-network)
- ESN (www.auth.esngreece.gr)
- IEEE (www.ieee.org/index.html)
- P.A.N.D.O.R.A. (http://pandorafms.com/Producto/network-monitoring/en)
- ODAK (http://odak.web.auth.gr)
- LEGIS - Legal Aspects of Information Society (http://ftacademy.org/sites/ftacademy.org/files/materials/fta-m6-legal_as...)
- COMVOS (www.comvos-uni.gr)
- GnM Association - International Career Festival (www.internationalcareersfestival.org/static/1/about-us/giovani-ne...)
- IVSA - International Veterinary Students' Association (www.ivsagreece.org)
- SDSN Youth (http://unsdsn.org/get-involved/youth)

Quality Assurance Unit (MO.DI.P.) of Aristotle University of Thessaloniki.

The MO.DI.P is an advisory body for the administration of the University which, through the coordination of procedures for internal and external evaluation of the academic units of the Institution, gathers valuable information regarding the strong and weak points of the university, the shortcomings and all the necessities and recommends improvements and changes in order to ensure the provision of high quality services to its students, its staff, as well as to the society.

The role of MODIP of Greek HEIs (according to article 14 of statute Greek law nr 4009/2011) can be summarized in the following points: development of policies, strategies and processes to improve the Institution; organization, function and improvement of the quality assurance system; coordination and support of the evaluation processes of units; support of the processes for external evaluation and certification of the Programmes of Studies.

The Research Committee of Aristotle University of Thessaloniki.

The Research Committee of the Aristotle University operates in accordance with the 679/96 Joint Ministerial Decision on the establishment of a "Special Account for Research Grants" (S.A.R.G.) for funding research projects conducted in Greek Higher Education Institutions and Higher Technological Education Institutions, and in compliance with national and European legislation. It is responsible for the financial management of research projects and activities carried out at the university.

The aim of the Special Account is to distribute and manage funds which cover any kind of expenditure and are necessary for research, educational training, and technological development. The Special Account also concerns funds for continuing education projects, projects for the provision of scientific, technological and artistic services, for studies, the implementation of tests, measurement, laboratory tests and analyses, for the provision of expert opinions, the drawing up of specifications, as well as other related services or activities that contribute to linking research and education with industrial production, and are provided or carried out by the research personnel of the Aristotle University of Thessaloniki in collaboration with the academic staff of other institutions.

The Research Committee is responsible for managing research projects and related activities, covering current emerging needs, distributing external funds, and safeguarding the distinction between research and teaching. A number of faculty members elected by the General

Assemblies of the Schools, which equals the number of the Schools of the Aristotle University, attend the plenum meetings of the Research Committee.

Key responsibilities of the Research Committee include:

- mapping out the research policy of the university, and relevant activities,
- accepting, approving, distributing funds for the implementation of projects,
- drawing up annual economic and research plans and reports,
- ensuring the smooth running of the "Special Account".

Implementing a quality policy that helps improve the internal organization of the research units of the university in accordance with international models and the demands of contemporary society, as well as implementing an excellence policy that provides the research personnel of the university with moral and, to a lesser extent, material incentives, the Research Committee of the Aristotle University of Thessaloniki promotes a range of activities mainly with regards to:

- granting scholarships to doctoral candidates and postdoctoral researchers,
- enhancing research in the Humanities and other disciplines,
- supporting lecturers and assistant professors,
- organizing and operating an office of technology transfer,
- organizing educational seminars addressed to faculty members on how to write research proposals,
- organizing conferences - events held at the Aristotle University of Thessaloniki,
- updating infrastructure and communication networks necessary for research,
- certifying laboratories,
- promoting the mobility of researchers.

The School of Medicine, Aristotle University of Thessaloniki

The School of Medicine is one of the four Schools of the Faculty of Health Sciences, Aristotle University of Thessaloniki. It is based into the University campus of the University, which is located in the centre of the city of Thessaloniki and covers an area of about 33.4 hectares. It is University's largest School and it was recently ranked in an international evaluation as top among the country's seven University Schools of Medicine. Its human resources is of high quality, with faculty members that spent many years of postgraduate education and professional training abroad and who continuously produce a high level scientific and clinical workload.

The main goal of the School is to educate the medical students as well as to provide Greece health professionals with the highest scientific standards. An additional aim is to make high quality research either by itself or in collaboration with other Greek and international research centers. During their undergraduate studies the students participate in various research programmes of Laboratories and Departments.

The main educational goal of the School is the dissemination of ethical values that govern the medical practice to students as well as to ensure that the young medical doctors will acquire all scientific knowledge which will enable them to diagnose and effectively manage medical problems after obtaining their degree. Moreover, the faculty of the School of Medicine is the stuff of several hospitals as well as other units of the National Health System, and thus provides an important social work.

Administration

The School of Medicine, the Aristotle University of Thessaloniki is one of the most important and well-established Schools of Greece, both quantitatively and qualitatively, comprising the biggest School in the country regarding its enrollment, having more than 4.000 registered students, and 82 Departments and Laboratories.

The Administrative Bodies of the School are:

- the General Assembly of the School,
- the Board of Directors,
- the Head of the School of Medicine,
- the Deputy Head of the School of Medicine.

The organization of School comprises 9 Sectors:

- Sector of Sensory Organs,
- Sector of Radiology - Medical Physics and Informatics,
- Sector of Anatomy and Pathology,
- Sector of Biological Sciences and Preventive Medicine,
- Sector of Neurosciences,
- Sector of Internal Medicine,
- Sector of Child Health,
- Sector of Physiology and Pharmacology,
- Sector of Surgery.

The School of Medicine collaborates with all Hospitals of Thessaloniki; its Departments are located to the following premises:

- AHEPA University Hospital of Thessaloniki,
- General Hospital of Thessaloniki G. Gennimatas - Agios Dimitrios,
- Hippokration General Hospital of Thessaloniki,
- Hospital of Venereal and Skin Diseases of Thessaloniki,
- Papageorgiou General Hospital of Thessaloniki,
- G. Papanikolaou General Hospital of Thessaloniki,
- Psychiatric Hospital of Thessaloniki.

Undergraduate studies curriculum

In order to obtain the Medical Degree of the School of Medicine the students are required to attend compulsory and elective courses, to participate successfully at each exam and to carry out laboratory and clinical exercises. During the last two semesters the students are having clinical training by practicing medicine under guidance at the collaborating Hospitals. The formal duration of the undergraduate programme is 12 semesters, where students collect 361.3 ECTS after attending and successfully participating at 59 compulsory and 8 elective courses.

The undergraduate curriculum of the School of Medicine consists of six years; the first five years are divided into semesters. During the first two years, the courses are mainly dedicated to basic sciences, while the involvement to the clinical practice initiates at third year. Upon successful completion of the studies, the students receive the Medical Degree (Ptychion Iatrikes) (which is in agreement with point 5.1.1 of the 5th Annex of the EU Directive 2005/36/EC) and authorizes the medical profession practice both in the Public as well as Private Sector.

The new curriculum of the Undergraduate Program

The School of Medicine, Aristotle University of Thessaloniki has developed a new and contemporary undergraduate curriculum in line with the current international ones. The programme will be enrolled from the academic year 2019-2020. While all existing students will complete their studies with the current programme the incoming ones will follow the new one, which will gradually replace the existing one. The main goals of the new programme are: the development of both teacher's and student's creativity, the advancement of multi-combinational thinking and the expression of the intelligence and the talents of students and teachers. The ultimate purpose is to open new horizons to the students, and lead them through new pathways towards the fulfillment of their goals. Furthermore, The School aims to create an improved academic environment with increased student-tutor interaction, novel teaching methods and more flexible evaluation-exam methods. We hope that the new programme will inspire both teachers and students to reach their full academic potential.

Postgraduate Studies Programmes

At the School of Medicine, Aristotle University of Thessaloniki there are Postgraduate Studies Programmes (Masters) that also lead to awarding Doctorate Diplomas (PhD). The Doctorate Dissertation is an option either as part of the Postgraduate Studies Programmes or independently by the School. Postdoctoral Research is also available.

The School offers in total twenty-five Postgraduate Programmes, which indicate the profile main fields of the School. Fifteen of them are Postgraduate Programmes of the School of Medicine:

- Research Methodology in Medicine and Health Sciences,
- Development Psychopathology of Infancy and Early Childhood,
- Perfusion Techniques - Technology of Devices in Cardiac Surgery,
- Medical Research Methodology (in English),
- Clinical and Industrial Pharmacology - Clinical Toxicology,
- Clinical and Surgical Anatomy (Applied Anatomy),
- Public Health and Health Policy,
- Thyroid and Parathyroid Gland Surgery,
- Primary Health Care,
- Applied Nutrition and Health Promotion,

- Critical Care Nursing,
- Novel methods and technology in therapeutic management of Diabetes Mellitus,
- Human Reproduction,
- Therapeutic strategies and management of vascular emergencies,
- Clinical Mental Health.

There are ten Interdepartmental/Interinstitutional Postgraduate Programmes:

- Medical Informatics,
- Contemporary Medical Acts: Legal Regulation and Bioethical Dimension,
- Sports and Health,
- History of Medicine and Biological Anthropology: Health, Disease and Natural Selection,
- Critical Thinking and Soft Skills in Biomedical Sciences,
- Neuroimmunology,
- Health and Environmental Factors,
- Applied Psychology in Health and Healthcare Management,
- Stem cells and Regenerative Medicine,
- Precision Medicine – Translational Research and Therapeutics.

International Partnerships

The School of Medicine, Aristotle University of Thessaloniki participates to 62 international Educational Organizations, Unions and Networks of Universities as well as to 15 Students Associations. The aim of its international co-operations is the promotion and the development of its academic and research activities.

Contemporary, the School of Medicine maintains more than 46 active co-operation agreements with Universities and Institutions:

- The University of Massachusetts Boston, USA (www.umb.edu)
- Stony Brook University, USA (www.stonybrook.edu)
- National Institutes of Health Clinical Center, USA (www.cc.nih.gov)
- Stockton University, USA (http://intraweb.stockton.edu/eyos/page.cfm?siteID=197&pageID=5&layout=hp)
- European University of Cyprus, Cyprus (www.euc.au.cy)
- University of Nicosia, Cyprus (www.unic.ac.cy)

- Saarland University, Germany (www.uni-saarland.de/en/home.html)
- University of Cologne, Germany (www.uni-koeln.de)
- University of Leipzig, Germany (www.uni-leipzig.de/english)
- University of Brescia, Italy (www.unibs.it)
- University of Messina, Italy (www.unime.it/en)
- University of Napoli Federico II, Italy (www.unina.it/home;jsessionid=B7576B8A4C36D44DDF2B160744D7503F.node_stagin...)
- Ben - Gurion University of the Negev, Israel (http://in.bgu.ac.il/en/Pages/default.aspx)
- Tel Aviv University, Israel (https://english.tau.ac.il)
- Jordan University of Science and Technology, Jordan (www.just.edu.jo)
- Lomonosov Moscow State University, Russia (www.msu.ru/en)
- Peoples' Friendship University of Russia, Russia (www.rudn.ru/en)
- Stavropol State Medical University, Russia (http://en.stgmu.ru/page_90.html)
- Joint Institute for Nuclear Research, Russia (www.jinr.ru)
- National Aviation University, Ukraine (https://nau.edu.ua/en)
- Ivane Javakhishvili Tbilisi State University, Georgia (www.tsu.ge/en)
- Karaganda State Medical University, Kazakhstan (www.kgmu.kz/en)
- University of Latvia, Latvia (www.lu.lv/eng)
- Chang'an University, China (http://en.chd.edu.cn)
- City University of Hong Kong, China (www.cityu.edu.hk)
- Hangzhou Normal University, China (http://english.hznu.edu.cn)
- Jinan University, China (https://english.jnu.edu.cn)
- Southwest Jiaotong University, China (http://english.swjtu.edu.cn)
- Seoul National University, South Korea (http://www.useoul.edu)
- Chonbuk National University, South Korea (http://www.cbnu.edu/eng)
- Chiba University, Japan (www.chiba-u.ac.jp/e)
- Andalas University, Indonesia (www.unand.ac.id/en)
- University of Campinas (UNICAMP), Brazil (www.unicamp.br/unicamp/?language=en)
- Universidad Nacional de Colombia, Colombia (http://unal.edu.co)
- Charles University Czech Repuplic (www1.cuni.cz/index.php?lng=eng)
- Comenius University, Slovakia (www.uniba.sk)
- University of Belgrade, Serbia (www.bg.ac.yu/en_index.php)

- University of Kragujevac, Serbia (www.kg.ac.yu/defen.asp)
- University of Novi-Sad, Sebia (www.ns.ac.yu/stara/eng/prezentacija.html)
- Trakya University, Turkey (www.trakya.edu.tr)
- Ss. Cyril and Methodius University in Skopje, Skopje (www.ukim.edu.mk/en_index.php)
- St. Kliment Ohridski University of Bitola, Skopje (www.uklo.edu.mk)
- University of Banja Luka, Bosnia – Herzegovina (http://www.unibl.org/en)
- University of Tuzla, Bosnia – Herzegovina (www.untz.ba/index.php?page=home)
- Varna Medical University, Bulgaria (www.mu-varna.bg/en)

The Centre for Biomedical Research and Education

The Centre for Biomedical Research and Education (CBRE) was established in February 2019. It is considered by the Senate of the Aristotle University as necessary for it will facilitate the collaboration and interaction between the School of Medicine and scientific groups from other University Schools with relevant research interests, as well as institutions and/or companies dealing with biomedical research, medical education, Continuing Professional Development and the provision of quality healthcare services. Furthermore, establishing CBRE will contribute substantial to the added value of the innovation zone of the School of Medicine and of the Aristotle University of Thessaloniki, as well as to the city of Thessaloniki and generally to Northern Greece.

The aim of the fledging CRBE is to support and promote biomedical research and education based on interdisciplinary approaches. Specifically, it aims at: facilitating two-way collaboration between various medical, dental and pharmaceutical specialties as well as other subject domains within the health sciences, biomedical engineering, molecular medicine, pharmacogenetics and biotechnology; developing biomedical research in basic biosciences, in the area of translational research and applied biomedicine, in order to deliver quality, safe and continuing healthcare services to citizens, focusing on prevention and on superior management of diseases; creating, evaluating and standardizing innovative research and educational products, systems and services, as well as establishing spin-off and start-up companies in order to support and bring up to the market innovative applications and products for biomedical practice; creating a meeting and working point for the academic community and biomedical research industry, aiming to come up with solutions to the interdisciplinary and complex problems in the field of biomedical research. Moreover, CRBE is set to: organize hands-on workshops, courses and specialization

seminars for undergraduate or postgraduate students or PhD candidates, which may form part of the curriculum offered by Aristotle University and may be open to Erasmus exchange programme; admit foreign students through European Union programmes or scientific exchange programmes between Aristotle University and peer institutions based in non-EU countries.

The CRBE comprises three Units:

- The Basic and Translational Research Unit (BTRU), which comprises the 12 research structures: Genetic & Molecular Biology, Stem Cell and Regenerative Medicine, Biochemistry and Molecular, Pharmacology, Histopathology, Toxicology Studies, Oncology, Immunology, Haematology, Cardiology, Renal Medicine, Neurosciences, Biomedical Engineering and Informatics. Main feature of the BTRU is the interdisciplinarity. The Unit's research structures will enable collaboration between University faculty and researchers from the Schools of Medicine, Dentistry, Pharmacology, Veterinary Medicine, Biology as well as Schools of the Faculty of Engineering and the Faculty of Sciences that share common special interests in basic and translational research. The Unit's aim is to translate basic research findings into new approaches for the prevention, diagnosis and treatment of various diseases. The BTRU scope of activities includes the supervision of postgraduate dissertations, PhD theses, post-doctoral research and other research or service provision projects.
- The Clinical Trials Unit (CTU), which is set to provide a portfolio of high-quality services to the Hellenic National Health Service, to the health-related regulators (e.g. the Ministry of Health, the National Organization for Medicines - EOF, the European Medicines Agency - EMA, Food and Drug Administration- FDA, etc.), to social security providers as well as to Hellenic and international pharmaceutical industry, on matters relating to the efficacy and safety of drugs with regards to: the certification of bioequivalence and/or therapeutic equivalence between essentially identical drugs (genotypes, copies), as well as original medicinal substances, allied with EOF and EMA specifications; testing the pharmacokinetics (absorption, distribution, metabolism, excretion) of pharmaceutical products (systems) for the controlled release of drugs, and products manufactured with the use of nanotechnology, so as they obtain licensing.

  The CTU has as main scope to run phase I clinical trials, studies of bioequivalence and/or therapeutic equivalence, pharmaco-vigilance and pharmaco-epidemiology studies. It will also offer sub-specialty training to doctors who hold the Certificate of Specialization in Clinical Pharmacology. More specifically, the CRU activities will include the following: running phase I clinical trials aiming at specifying the correct dosing for treatments whilst in parallel

assessing the safety profile of new drugs; running bioequivalence studies in a way similar to phase I clinical trials; offering a consulting service to doctors from all disciplines so as to select the optimal treatment, having taken into account the clinical status of the patient, in order to better manage drug regimens and to avoid excessive prescribing; analyzing biological specimens to determine drug concentrations in order to individualize dosing for patients; organizing a reference centre for drug side-effects, creating registry and producing retrospective case analyses; promoting methods for the control of the risks from hazardous interactions between drugs or other factors and for avoiding over-dosing or under-dosing, as well as for other procedures so as to reduce pharmaceutical errors; promoting rational methods for the control of costs whilst improving therapy practice and clinical outcomes for patients; providing diagnostic and therapeutic support in poisoning cases.

- The Precision Medicine Unit (PMU), which has as main objective to establish an individual's predisposition to a specific disease, as well as to efficiently detect the establishment of a disease. This objective can be achieved through: prevention, that is, the identification of vulnerable groups in the general population and the application of preventive measures; early diagnosis of the disease and timely therapeutic intervention; maximization of benefits to be gained from the selected treatment, whilst minimizing side effects; drastically cutting costs thanks to delivering the optimal treatment to the correct patient. The PMU shall initially focus on developing and implementing the above activities in three areas: Oncology, Cardiovascular diseases, Neurodegenerative diseases. In a subsequent phase, the PMU shall expand its activities to include the diagnostic and therapeutic management of other diseases with multifactorial aetiology as well as to perform effective research around such diseases, the following supporting structures and resources – also to be developed within the PMU – are required: Biostatistics & Epidemiology, Genetic Epidemiology and Bioinformatics, Big Data, Health Economics, Artificial Intelligence. The PMU expansion shall be based on the collaboration with the research structures of the Basic & Translational Research Unit and the Clinical Trials Unit, as well as with the Laboratories and Clinical Departments of the School of Medicine, Aristotle University. Additionally, the Unit shall seek collaboration with international entities that deal with Precision Medicine and training new scientists at similar laboratories abroad.

  Genetic testing will be a key activity for the PMU. It will be focused on the investigation of and correlation between patient's genome and the response to specific treatment options, as well as to the epigenetic impact of drugs and various environmental factors such as nutrition. Moreover, the PMU scope includes the development of controlled-release drug dosing

systems (e.g. polymeric nanoparticles, microcapsules, liposomes etc.), aiming on the one hand to increase the efficacy and reduce the toxicity of drugs under development whilst, one the other, to acquire the capacity for the production of literally new pharmaceutical products resulting from improvements and/or modifications to the excipients used in already licensed drugs. Although Precision Medicine is in its element when it comes to research on customising drug regimens, the PMU shall also work in the areas of diagnostic precision and ranking as well as making decisions regarding individualised prognosis, follow-up and management, based on criteria including cost/effectiveness comparisons. In order to ensure CRBE smooth running, cover its multifaceted activities and implement the Board's decisions, CRBE may appoint an Operations Manager, administrative staff and research fellows (i.e. doctoral, post-doctoral, academic fellows, postgraduate training fellows, graduates and students of postgraduate programmes, PhD candidates and an initially limited number of new researchers).

Research profile and emerging fields of the School of Medicine

The research profile of the **Sector of Sensory Organs** is harbored primarily by the collaborative activity of the three Departments of Ophthalmology, the Eye Bank that conducts technical and quality control of corneal transplants, and the Laboratory of Experimental Ophthalmology that provides advanced simulated training in ophthalmic surgery and wet labs. Nanotechnology Laboratory of the School of Physics is a key external partner in research activities involving macular degeneration and retinopathy of prematurity. Ongoing research focuses on emerging treatment strategies for glaucoma, retinal vascular disorders and xeropthalmia. Moreover, within the scopus of the Laboratory of Experimental Ophthalmology lies the emerging field of stem cell therapy in corneal disease. The profile field of this Sector is reinforced by the Department of Otolaryngology which focuses on skull base, head and neck oncology as well as cochlear surgery.

In the Sector of **Radiology - Medical Physics and Informatics** outstanding collaborative research activities are conducted in the framework of research groups, leaders in their respective specialties, which pursue innovative projects. They have been recognized internationally for their research excellence and have been funded by a wide spectrum of national and international sources. The ASsistive TechnOlogies and Silver Science Group focuses on the field of Ambient Assisted Living and Biomedical Engineering by exploring shifting paradigms in elderly healthcare as well as care for developmental disorders and the different innovations and breakthroughs brought about by information communication technologies (ICT), mobile technologies and web technologies in general. The Biomedical Electronics Robotics & Devices (BERD) research group develops electronics and software to design novel devices capable of physiological data acquisition and actuation, on-board signal processing, data encryption, storage and secure transfer. A particular interest is placed in portable, non-invasive, power autonomous and low power electronics development, wearable, implantable and ubiquitous computing, as well as system-on-chip technologies and Medical Robotics. The profile field of Neuroscience of Cognition and Affection unites researchers from Neurology and Neurosurgery Departments with the Laboratory of Physiology and the Schools of Informatics, Mathematics and Psychology in a collaborative effort towards investigating human emotions, evaluating the effectiveness of non-pharmaceutical interventions of physical and cognitive stimulation, and understanding how these interventions nurture cognitive health and emotional well-being

throughout the life span of both healthy population as well as cognitively challenged patients. Extensive research also involves medical training simulation with development of the Virtual Patient and training on special groups, such as patients with Down syndrome. In the field of Medical Informatics and Imaging extensive collaborative research focuses on:

- system for patient monitoring in home (CHS Project, PANACEIA-iTV)
- biomedical signal processing
- semantics
- biomedical image processing, implementation of interoperability patterns in healthcare
- simulation of cardiac tissue using applied math and parallelization
- decision support systems for diabetes and chronic heart disease patients
- cardiac arrhythmia mechanisms and electrophysiology
- hospital and regional information systems
- electronic health record
- neural networks and fuzzy logic

The research profile field of the **Sector of Anatomy and Pathology** is based both on individual research and collaborative efforts with other Schools and Departments. Applied (clinical and surgical) human anatomy training is undergoing dynamic development, which is additionally driven by cooperation with surgical specialties for improving surgical skills in various specialties (general surgery, vascular surgery, cardiothoracic surgery, neurosurgery etc.). Sports Medicine as related to functional anatomy represents an emerging field. Application of contemporary molecular techniques that guide proper diagnosis integrate the collaborative effort of the Departments of Histology, Pathology and Forensic Medicine. Special emphasis is given on research on liver pathology and amyloidosis. Moreover, analytical and clinical toxicology is continuously developing with the collaborative effort of the School of Pharmacy, School of Chemistry, School of Biology and School of Veterinary Medicine.

The profile field of the **Sector of Biological Sciences and Preventive Medicine** unites research activities of Medical Biology and Genetics, Biochemistry, Microbiology, Hygiene and Preventive Medicine. The Department of Microbiology serves as a National Reference Centre for Arbovirus Infections liaised with the respective european network. It is also reference center for the area of Northern Greece for influenza under the umbrella of the European Influenza

Surveillance Scheme and the World Health Organization. Research focuses on molecular techniques used for the isolation of influenza virus as well as resistance to antiviral treatment. Moreover, Aristotle University of Thessaloniki School of Medicine hosts the National Reference Centre for HIV infection, which focuses on epidemiological monitoring and contemporary molecular diagnosis of HIV infection. In collaboration with the Hellenic Center for Disease Control and Prevention (HCDCP) and Institute Pasteur extensive research is conducted on nosocomial infections from multi-resistant pathogens. The Department of Medical Biology and Genetics collaborates with the School of Chemistry on investigating the biological effects of electromagnetic fields in humans. Moreover, emphasis is given on molecular biomarkers in HPV-related carcinogenesis and on molecular diagnosis of genetic diseases. The profile field of this Sector is reinforced by the Department of Hygiene which cooperates with respective academic Departments (Athens, Patras, Ioannina, Thessaly) on water infection diagnosis and control as well as on applied nutrition management in disease states and physical improvement.

In the profile field of the **Sector of Neurosciences** outstanding collaborative research activities are conducted in the framework of three academic neurology departments on multiple sclerosis, Parkinson's disease and Alzheimer disease. Under the umbrella of Aristotle University of Thessaloniki School of Medicine operates a contemporary Multiple Sclerosis Centre that conducts advanced clinical and experimental research funded by domestic and international sources. Another pillar of this profile field is a broad consortium consisting of 11 partners, academic (Karolinska Institute and Universities of Dresden and Lisbon, King's College London), technical institutions (CERTH, FRAUNHOFER) and companies (COSMOTE, PLUX, MICROSOFT) from six EU countries, led by Aristotle University of Thessaloniki, which have joined forces for i-PROGNOSIS in order to provide technology-based solutions against Parkinson's disease. Pronounced interdisciplinarity and effective bridge-building between neuroscience on one hand and electrical engineering, informatics, physical education and psychology on the other hand characterize research on Alzheimer disease that has created structures which contribute to improved medical and social care of patients. Neuroscience research is reinforced by the collaborative activities of three academic psychiatry departments which focuses on the development of personalized and precision psychiatry in bipolar disease and schizophrenia. This research activity is supported by numerous publications in high impact journals and books. Its members have extensive participation in international research networks in Europe and the US. Two sections of the World Psychiatric Association (Evidence-Based

Psychiatry and Pharmacopsychiatry) are chaired by members of Aristotle University of Thessaloniki School of Medicine.

The profile research activity of the **Sector of Child Health** unites research activity of four academic pediatric departments supported by two neonatology and two pediatric surgical departments. It comprises major collaborative projects and independent research groups funded by national and international programmes. Under the umbrella of Aristotle University of Thessaloniki School of Medicine operate specialized pediatric referral centers that promote clinical, laboratory and experimental research (Centre for Developmental Pediatrics A. Fokas, Centre for Thalassemia and sickle-cell disease, Centre for Cystic Fibrosis, Centre for Hemorrhagic Disease, Centre for Childhood Metabolic and Hereditary Diseases). Exceptional research activity is evidenced in neurodevelopmental diseases, while this sector is responsible for keeping the national registry for Pompe and Gaucher disease. Another pillar of significant research interest is diagnosis and management of infectious disease in neonates and children, which is based on close collaboration between the academic Pediatric Departments with Neonatology, Pediatric Oncology and Pediatric ICU departments. Specialized research groups focus on vaccine development and immune disease, diagnosis and contemporary management of diabetes and endocrine disorders in childhood, while the emerging field of Adolescent Medicine that liaises pediatrics with a broad spectrum of related specialties that mainly focus on adult care has gained significant impetus. Pediatric Surgery works in close cooperation with pediatric and neonatology departments and promotes research on minimal-invasive pediatric surgery.

The profile field of the **Sector of Physiology and Pharmacology** is based on experimental research on neurophysiology and neuroendocrinology which integrates collaborative efforts from the Laboratory of Medical Informatics, School of Biology and the Faculty of Sciences towards creation of mathematical models for simulation of cellular and neural function. The emerging field of stem cell physiology and molecular biology has attracted significant interest. The project “Cross Border Stem Cell Regenerative Medicine Center” with the acronym “REMEDIC” was developed aiming to promote the development of the infrastructures and the expedition of technology transfer with respect to cellular therapies and regenerative medicine. Experimental model of cystic fibrosis and atherosclerosis have been developed, while extensive research was performed to investigate the role of natriuretic peptides in cardiovascular

physiology. Computational Genomics and Computational Proteomics represent emerging fields of research interest. The Department of Pharmacology is closely connected to the National Medicines Agency (EOF), National School of Public Health, Schools of Pharmacy and Medicine, Athens University and the National Research Foundation. Main research focuses on guiding clinical trials, performing bioequivalence and biowaiver studies, promoting continuous education in clinical pharmacology and therapeutics as well as on preclinical testing for drug development. Emerging fields of research activity represent pharmacogenomics and pharmacogenetics.

The **Sector of Internal Medicine** integrates 15 clinical academic departments covering a broad spectrum of medical specialties. It represents, together with the Sector of Surgery, one of the two major clinical pillars of applied clinical research activity. This is based both on strong individual research as well as outstanding collaborative research with the other Sectors of Aristotle University School of Medicine and academic institutions in Greece and abroad as evidenced in the vast number of projects funded by national and international sources. Emphasis of research activity is focused on:

- **Atherosclerosis**: creation of a national registry of patients with familial hypercholesterolemia, conduct of clinical trials on contemporary management of hyperlipidemia, investigation on the pathogenesis of coronary artery disease.
- **Cardiology**: conduct of clinical trials on emerging pharmacological management of heart failure, pulmonary arterial hypertension, pulmonary embolism and antithrombotic treatment of atrial fibrillation. Development of a panhellenic network for registering cardiac ablation procedures. Advances in cardiac magnetic resonance imaging. Management of chronic total occlusion in coronary artery disease.
- **Diabetes**: conduct of numerous clinical trials on emerging pharmacological management of type 2 diabetes and on insulin therapy for gestational diabetes. Molecular diagnosis of genetic polymorphisms in type 2 diabetes.
- **Arterial hypertension**: evaluation of endothelial function in hypertensive patients. In collaboration with Cardiology investigation of renal denervation therapy.
- **Hepatobiliary disease**: conduct of clinical trials on emerging management of hepatocellular carcinoma, non-alcoholic steatohepatitis. Evaluation of hepatic fibrosis in patients with thalassemia. Creation of a national registry on the incidence and management viral hepatitis.

- **Gastroenterology**: conduct of clinical trials on emerging pharmacological management of inflammatory bowel disease.
- **Nephrology**: conduct of clinical trial on emerging pharmacological management of diabetic nephropathy, anaemia in chronic kidney disease, hyperphosphatasemia and nephritis in chronic lupus erythematosus.
- **Oncology**: Numerous multicenter clinical trials are conducted focusing on targeted therapy drugs for: colorectal cancer, ovarian cancer, breast cancer, urothelial cancer, lung cancer, gastric carcinoma, melanoma, renal cancer, prostate cancer and soft tissue sarcomas.
- **Haematology**: management of haematologic malignancies (multiple myeloma, lymphoma), pathogenesis of anaemia in the elderly, contemporary pharmacological management in β-thalassemia.
- **Rheumatology and Immunology**: clinical studies are conducted on the management of psoriatic arthritis, angylosing spondylitis, juvenile rheumatoid arthritis and primary immunodeficiency.
- **Respiratory medicine**: multiple clinical trials are conducted on emerging chemotherapeutic management of small cell and non-small cell lung cancer, and neuroendocrine tumors. In benign disease research emphasis is given on pharmacological management of chronic obstructive pulmonary disease.
- **Dermatology**: multiple clinical trials are conducted on laboratory evaluation and emerging pharmaceutical management of psoriasis, atopic dermatitis, skin tumors, pemphigus and skin infectious disease.
- **Endocrinology**: research is focused on various aspects of modern reproductive endocrinology as well as management of acromegaly. Research on diabetes is a key component of endocrinology research activity.
- **Infectious diseases**: Aristotle University of Thessaloniki School of Medicine hosts the National Reference Centre for HIV infection, which focuses on epidemiological monitoring and contemporary molecular diagnosis of HIV infection. In collaboration with the Hellenic Center for Disease Control and Prevention (HCDCP) and Institute Pasteur extensive research is conducted on nosocomial infections from multi-resistant pathogens.

The **Sector of Surgery** is the largest sector which integrates activity of 21 clinical academic departments located in 5 hospitals, which cover a broad spectrum of surgical specialties. It

represents, together with the Sector of Internal Medicine, the second fundamental clinical pillar of applied clinical research activity. This is based both on strong individual research as well as outstanding collaborative research with the other Sectors of Aristotle University School of Medicine and numerous academic institutions in Greece and abroad as evidenced in the vast number of projects funded by national and international sources. According to the clinical specialty, emphasis of research activity is focused on:

- **General Surgery**: research in General Surgery is based both on strong individual research and on the development collaborative projects with pre-clinical laboratories and clinical departments. Main fields of research are: trauma surgery, colorectal, hepatobiliary and pancreatic surgery as well as breast and endocrine surgery. A multicenter consortium with the School of Rural and Surveying Engineering, Aristotle University of Thessaloniki and Berlin, Bern and Boston Universities has been built for investigation of 3D printing of internal organs for surgical purpose and received funding from national sources. Moreover, transplant surgery collaborates with Biological Sciences Sector for the investigation of immunosuppressive management after renal transplantation.
- **Gynecology and Obstetrics**: research on this field is primarily harbored by the Section of in vitro fertilization and human reproduction. Moreover, ongoing research focuses on prenatal diagnosis, HPV testing, morphological and molecular diagnostic cytology, polycystic ovary syndrome as well as on ovarian, endometrial and cervical cancer management.
- **Cardiothoracic surgery**: Cardiothoracic Surgical Department is reference center for the development of minimal invasive extracorporeal circulation. Moreover, in collaboration with pre-clinical and clinical Sectors, it conducts the only national postgraduate programme on extracorporeal circulation (perfusion) education in the country. Emerging contemporary research fields involve coagulation management in cardiac surgery and application of stem cell therapy in patients with heart failure.
- **Urology**: Department of Urology has developed a multidisciplinary Institute for the Study of Urological Diseases (ISUD), which focuses on clinical research extending also to basic research implementing programmes for disseminating information and raising public awareness on benign and malignant urologic diseases. In addition, ISUD expands its actions by conducting check-up programmes for citizens, while designing and carrying out epidemiological studies in the community. ISUD provides advisory and organizational services to third parties (public and private bodies, companies, enterprises) within the context of actions related to its field.

- **Vascular surgery**: research on vascular surgery focuses on the endovascular management of aortic and carotid disease.
- **Orthopedics**: research in Orthopedics focuses on reconstructive surgery for primary scoliosis and on prevention of venous thromboembolism after knee arthroplasty.
- **Plastic surgery**: Department of Plastic Surgery collaborates with Histology, Pathology and Pharmacology laboratories as well as with Dermatology and other clinical departments in the field of advancing reconstructive surgery. Main emphasis is given on the investigation of microcirculation during reconstructive procedures and on improvement of wound healing process.

National Cochrane Centre

The general assembly of the School of Medicine, Aristotle University of Thessaloniki has officially decided to support any action that would lead to the establishment of a Greek Cochrane Center within the School. To fulfill this aim, during the last few months a workgroup has been established, has contacted the head office of the Cochrane and initiated all the necessary procedures in order to officially establish such a center. It is expected that the procedures will be completed in January 2020. The Cochrane is a well-known international foundation which promotes ‘evidence-based medicine’ by encouraging and setting the standards for meta-analyses and related research activities. The establishment of such a center in the School of Medicine, Aristotle University of Thessaloniki will give a huge boost in evidence based medicine in terms of teaching, research but also of clinical practice. It will officially cover all Greece but also Cyprus and will have the potential to spread its influence in areas without similar centers, including the Balkans, Middle East as well as North Africa.

Training

As one of the largest Universities in Greece and an Institution where several generations have received their undergraduate and graduate school education, training is a core part of the mission of the Aristotle University of Thessaloniki. This training is an ongoing process which occurs at several different levels (faculty, residents and postgraduate students, medical students and administrative staff). The goal of the next few pages is to identify, for each of the groups mentioned, areas where there are opportunities for training collaboration and cooperation that would benefit all parties involved.

Faculty

i) New technology/instruments/techniques: We live in an environment where technology is making daily progress, in a manner that has completely reshaped both medical education, as well as patient care. As a result, initiatives that would be of benefit include, but are not limited to:

- Workshops, in collaboration with industry and international training centers, to train faculty in the use of new medical and surgical technology. These would be under the auspices of the Medical School and could include international participation, with the ultimate goal of creating regional training centers. A combination of live patient, cadaveric, animal and simulation laboratory facilities, which currently exist at the Aristotle University, would be used. These training centers, following the example of similar centers in the U.S.A. and other countries, would also produce training material (such as webinars, e-learning or DVDs) and through these, as well as the courses could reach a level of financial self-sufficiency. Obviously, in addition to setting up these training centers at the Aristotle University, an initial step would be the involvement of faculty in exchanges at existing international training centers, as part of the creation of long-lasting relationships. The use of these workshops, and eventual training centers, could play a major role in the advancement of fields such as minimally invasive surgery, as well as precision or patient-targeted medicine.

- Another example of technologies that can be incorporated into clinical and academic practice, according to a White Paper by the Medical Group Management Association 2019, are:
  - Patient portals
  - Automated appointment reminder systems

- Check-in technologies
- Telehealth
- Digital payment options
- Data analytics.

According to the report, 70% of healthcare leaders plan to adopt these technologies in 2019 to make their practices more efficient. The report was compiled based on an online survey and follow-up interviews of healthcare leaders who had implemented patient-focused technology in the last five years. Input and collaboration from US centers and Medical Association can be critical in implementing these at the Aristotle University School of Medicine.

ii) Medical/surgical education: Despite the fact that one of the primary missions in Academic Medicine is the education of our students and residents, it is true that the majority of faculty have not had any formal training in how to be educators, ie how to best impart their knowledge to the students in a structured and successful manner. At the Aristotle University School of Medicine, there has been an effort to change that through the institution of a voluntary course called "Educating the Educator". However, this needs to be expanded to all faculty and also amplified through the integration of experiences and "best practices" from other institutions abroad. Some of the ways that this could be done are:

- Scholarships targeted for medical education which would serve for faculty to travel to other institutions and observe their practices, as well as attend Medical Education conferences. Such scholarships presently exist, for example, through the American College of Surgeons.
- Institute Faculty exchanges between the Aristotle University and other Academic Centers in the US and Europe focused on the educational aspect of medicine with the goal of also using these methods within the classroom/amphitheatre or hospital ward
- Create collaborations, such as those by the Institute of International Education, with Academic centers and Universities in the US and abroad to work on issues such as co-development of the academic curriculum (which has recently undergone a much needed change), testing methods etc.
- Through collaboration with international institutions where these practices are more prevalent, increase the use of technology as a part of learning, with methods such as distance learning, e-learning, use of webinars. This would be critical for a system which is overburdened by too many students and where a faculty may have to lecture to couple of

hundred students at the same time. Additionally, it will allow students to make better use of their time and overall increase the quality of the education.

iii) Simulation: Given the fact that we live in an era of increased medico legal activity, time constraints and more widespread use of (not always quality) information through electronic media, there is significant pressure on faculty to perform their main duties of treating the patients and training the residents and medical students, while at the same time safeguarding the health of the patients and doing all that in the most cost-effective manner. One of the main answers to this challenge has been the use of simulation.

- The challenge is to set up a simulation center (independent or as part of the training center) where faculty will be able to continuously sharpen their skills and at the same time teach the different procedures to residents and medical students (prior to the patient interaction), as well as evaluate the performance of the residents and students in an objective manner. Different types of simulation will be used including traditional training boxes, augmented reality and virtual reality simulators, mannequins and actors, among others.
- Participation through scholarships or exchanges and collaboration with the major simulation centers in the US and Europe by junior faculty having the opportunity to complete a medical or surgical simulation fellowship, which will allow them to be active participants in the management of the simulation center

iv) Research: Research represents one of the fundamental elements of academic life, as well as the clear path for financial autonomy for most academic institutions today. This is especially important for Greek Universities which were used to survival through governmental subsidies, a model which is no longer sustainable given the global financial crisis. As a result, there is the effort to identify our research strengths and abilities and bring these to the marketplace. Faculty would benefit from training in how to:

- Organize and conduct laboratory and clinical research
- Identify regional and global possible partners, so that their research can increase in scope and target better funding
- Through exchanges with US and European institutions, which have had closer ties to the marketplace, there is an opportunity for our faculty to learn more about the financial and organizational aspect of bringing a research product to the marketplace.

- Train faculty on the importance and use of big data in the current electronic environment and identify ways to make best use of them. This would require the cooperation of Research centers in Artificial Intelligence in Europe and the US.
- Train faculty on how to make best use of their time, so that they can approach the "quadruple threat" academic icon of education, clinical work, research and administration.

v) Non-Technical Skills: One of the missing elements in medical training (at least in Greece) is training in Non-Technical Skills (NTS) which are essential in academic practice. These include, but not limited to: professionalism, leadership, communication and interpersonal skills, ethics, cultural and gender issues. Through collaboration with medical and surgical associations in the US and Europe (such as the American College of Surgeons), where these NTS have become part of training, this can improve the experience of the faculty and, more importantly, the overall care of our patients. Examples where this is taking place include the American College of Surgeons" Surgeons as Leaders Course, from the operating room to the boardroom", the American Society of Transplant Surgeons "Leadership Development Programme", the ASTS "Liver and Kidney Transplant Financial Bootcamps" among others.

vi) Continuous Medical Education and Verification: The goal here would be to institute specific guidelines and programmes to ensure the Continuous Medical Education of the faculty, as well as verification methods, similar to the Maintenance of Certification used by several medical and surgical specialties in the US. This would be an important step in assuring the quality of care provided.

Residents/Postgraduate students

i) Exchange programmes and scholarships: The ability to learn about the practice of medicine and surgery in a different institution, and especially if that institution is a world-renowned academic center, is indeed a great experience for any resident or post-graduate student. In order to make this happen:

- Resident exchanges between institutions are an excellent way to experience not only the practice of medicine, but also how the training process is organized in a different place. Additionally, residents can use this opportunity to consider fellowships and further steps in their

training, while at the same time creating long-lasting relationships with their international counterparts. Greece also has a lot to offer given the combination of diseases that are unique to Greece and the Mediterranean as well as the importance of Global Medicine and Surgery, as that has been defined by the WHO.

- Scholarships can also be more targeted ways of training, or at least obtaining a "taste" of training possibilities. Direct interaction with medical/surgical associations or academic centers in the US and Europe can lighten the bureaucratic obstacles. Additionally, another way to use these scholarships for training is for participation in one another's National Medical/Surgical Meetings. For example, teams of residents are welcomed at the American College of Surgeons Clinical Congress and are also encouraged to participate in aspects of the congress, such as the "Surgical Jeopardy" (knowledge game) where they compete against residents from the US and other countries.

ii) International competition: Consider the institution of a Medical/Surgical skills and knowledge Olympiad in Greece with international participation of residents from around the world.

iii) Simulation center: As shown in 1.3 above, there are significant benefits from the creation of a simulation center which will serve as a continuous training resource for the residents with the help and guidance of the faculty.

iv) Research: Establish research requirements and opportunities for residents during their training so that they can at least consider an academic career. However, in order to do that successfully, it would be useful to first establish a seminar/course where residents and postgraduate students will be taught:

- Putting together a research proposal
- Basics of basic science research
- Translational research and what it entails
- Clinical research and challenges involved (financial, regulatory, etc)
- Dealing with GDPR
- Obtaining funding for research

v) Mentoring: It would be very helpful for residents to have mentors that will guide them through the difficult path of residency. In addition to that if they can have access to international mentors (especially some with an understanding of the training system in Greece) which can offer them a different glimpse of medicine/surgery, then that would prepare them in a much better way for future challenges.

vi) Standardized Training Courses: There are certain international training courses with global success which would be extremely beneficial to our residents. Examples include the A.T.L.S. course in Trauma and the P.H.T.L.S. course as well as the Basic Life Support and Advanced Life Support courses. All these courses have originated from medical and surgical associations in the US and Europe and have a cost which is significant for most residents in Greece. Ideally, there could be a formula, where the courses would be integrated into the training of the residents (ie mandatory), which would have the advantage of increased preparedness for the residents and better quality of care for our patients, as well as the fact that this way it could be possible to identify other sources of funding for the resident participation in the course.

vii) Membership in international medical and surgical societies: Providing information on the different international (and especially US and European) medical and surgical associations and how residents could apply, would be one way of encouraging our residents to get involved with international medical and surgical societies and associations in an effort to improve their training, as well as understanding of the practice of medicine. This participation could involve participation in the various meetings, participation in several online medical and surgical communities, international collaborations regarding research projects, access to educational products, leadership and networking opportunities, just to name a few.

viii) Education: Just as we saw in 1.2 above with faculty, the same prevailing need to "educate the educators" exists with residents. Very frequently residents find themselves having to teach one another (senior to junior), as well as play a significant role in the teaching of medical students. In addition to that, this is a unique opportunity to prepare them for their future life as attending, by having them participate in structured educational courses, which would allow them to be better teachers.

ix) Preparing for Medical Practice: One of the things missing from current residency training in most countries is a roadmap from residency training to the medical/surgical workplace. This is more complex than it may seem at first as it involves knowledge and aptitudes that may not be a standard part of a medical education. Specifically, the residents need to:

- have an excellent understanding of the existing health care system, including insurance coverage models
- have an understanding of the different paths in front of them in terms of national health system, private practice and academia with all the advantages and disadvantages of each one
- understand the finances involved in starting a medical/surgical practice
- have a basic knowledge and negotiating skills so that they can get the best possible contract in the market
- understand the legal framework, including the responsibilities of a new attending in today's challenging medico legal climate
- identify ways of promoting themselves and their skills without succumbing to the ethical pitfalls of advertising in medicine

Medical Students

i) Exchange programmes and scholarships: Same as with the residents, the medical students are in a unique position (probably even more than the residents as they have increased mobility) to benefit from student exchange programmes and scholarship opportunities. The overall goal would be to a) allow them to gain clinical experience in another, and specifically at an academic center of excellence, b) learn about the practice of medicine/surgery in a different system, c) gain networking opportunities which could serve as an "audition" for a residency or a research position. In order to make this happen:

- Medical student exchanges between institutions are an excellent way to experience not only the practice of medicine, but also how the training process is organized in a different place. Currently there exist exchange programmes (Erasmus and Erasmus +) which can serve as the basis for this.
- Scholarships can also be more targeted ways of training, or at least obtaining a "taste" of training possibilities. Direct interaction with medical/surgical associations or academic centers in the US and Europe can lighten the bureaucratic obstacles. Additionally, another

way to use these scholarships for training is for participation in one another's National Medical/Surgical Meetings. For example teams of students are welcomed at the American College of Surgeons Clinical Congress and are also encouraged to participate in aspects of the congress, such as the "Surgical Jeopardy" (knowledge game) where they compete against students from the US and other countries.

ii) International competition***:*** Consider the institution of a Medical/Surgical skills and knowledge Olympiad in Greece with international participation of students from around the world.

iii) Simulation center***:*** As previously shown, there are significant benefits from the creation of a simulation center which will serve as a continuous training resource for the medical students with the help and guidance of the faculty. The proposal for the Surgical Simulation Center is even more important in the case of medical students as it creates a safe, , stress-free, modern, technologically-advanced and objective environment, where medical students can listen to lectures any time they want through e-learning and webinars and also learn technical and clinical skills through practice sessions. This way they will be prepared in the best possible manner when the time comes for them to interact with the patients.

iv) Research***:*** As busy as medical school is, there is always time for research given its importance. As far as medical students are concerned, possibilities include:

- establishing a seminar/course where residents and postgraduate students will be taught:
  - Putting together a research proposal
  - Basics of basic science research
  - Translational research and what it entails
  - Clinical research and challenges involved (financial, regulatory, etc)
  - Dealing with GDPR
  - Obtaining funding for research
- listing research opportunities within Greece and Internationally where students can go either during the year or during their vacation to work in a laboratory and at the same time use this as a networking opportunity.

v) Mentoring***:*** It would be very helpful for students to have mentors that will guide them through the difficult path of residency. In addition to that if they can have access to international mentors (especially some with an understanding of the training system in Greece) which can offer them a different glimpse of medicine/surgery, then that would prepare them in a much better way for future challenges.

vi) Standardized Training Courses***:*** Although it may be early in their education, still the possibility could be considered of giving access to medical students to standardized courses such as ATLS, PHTLS, BLS or ALS, on a voluntary basis. The advantage would be that students would already be prepared entering residency. These courses could be included in the medical school curriculum as elective courses, something which would necessitate the cooperation of the Medical School, the Health Ministry, the associations administering these courses, and, possibly, foundations that would be interested in sponsoring these courses for the medical students.

vii) Membership in international medical and surgical societies***:*** Providing information on the different international (and especially US and European) medical and surgical associations and how medical students could apply, would be one way of encouraging our students to get involved with international medical and surgical societies and associations in an effort to improve their training, as well as understanding of the practice of medicine. This participation could involve participation in the various meetings, participation in several online medical and surgical communities, international collaborations regarding research projects, access to educational products, leadership and networking opportunities, just to name a few.

Administrative Staff

It is evident that administration plays a critical role, by developing and nurturing the right environment for the medical students and the faculty to develop and flourish. In order to do that successfully, it is necessary to ensure the continuous development of administrative staff. Possible ways to do that include:

- Exchanges between universities in the US and Europe so that knowledge can be shared.

- With the collaboration of the International Relations Committee of the Aristotle University and the International Relations Office, it could be possible to arrange for a meeting/seminar of administrative staff regarding issues such as: best practices, use of technology, big data collection and sharing, GDPR, budget challenges, continuous training, among others.
- Identify institutions and enterprises that would be able to work with the administrative staff at the Aristotle University of Thessaloniki School of Medicine to upgrade the systems used both for administrative purposes, as well as for e-learning platforms. Additionally, this training could be used regarding “data mining” in cooperation with the Hospitals affiliated with the University in order to start approaching the issue of “big data” and health informatics.

Surgical Simulation Center

Chinese proverb: "tell me and I will forget, show me and I may remember, let me get involved and I will understand"

Importance of a surgical simulation center regarding education

This center using a combination of virtual reality and mannequin-based simulators, will offer the following advantages:

- opportunities for clinical skills learning for residents and medical students, which is becoming increasingly difficult given the current medicolegal system, and the increased practice of "defensive" medicine
- it can provide an objective method of training, practice and evaluation of medical students and residents in basic and advanced skills
- several different medical and surgical specialties can participate, given their individual needs
- it is possible to train and learn newer techniques and technologies in a safe and efficient manner, while the cost is smaller compared to the use of expensive animal models
- it is possible to branch out to an OSCE course for the medical students, as well as provide training ground and practice opportunities for faculty in terms of teaching techniques, ie "Train the Trainer" type of course
- it is possible to produce significant research work, regarding the use of simulation in surgical training, as it provides an objective assessment (and thus easily measurable parameters) of skills, as well as the improvement that is observed
- it is possible to use the simulation center for courses aimed at introducing new techniques to practicing surgeons
- it can be used for training of nursing personnel, as well as by the ACLS and ATLS courses
- there is the possibility of financial independence (or at least being able to partially self-sustain the center) through the organization of courses for practicing surgeons, or serving as an education/training center for residents from other centers, or through the production of training and simulation videos
- it can serve to increase the international visibility and recognition of the surgical residents, as well as serve for purposes of training accreditation (European Board of Surgery etc)
- it can become part of the surgical residency exams (skills component) given its objective assessment nature

- it can be an asset for the hospital, as it shows to the public that it is a pioneer in the training of future surgeons with the newest technology, while at the same time doing that in a patient safety-conscious manner, which is a key component of Quality Care
- given the decreasing hours available for training (80hr week) and the fact that operating room time is the most expensive resource, the importance of a surgical simulation center becomes even more obvious
- it can serve as part of a CME effort
- following ACS models, a surgical simulation center, through the use of technologies as simple as Skype, can serve as a telesimulation educational tool to provide education to remote areas of the country.

Types of simulation:

- model patients
- animal and cadaver models
- simulation based on a screen (video and website)
- mechanical models (mannequins and box trainers)
- virtual reality
- hybrid models

Simulator evaluation:

- ease of use
- current validation
- transferability
- credibility
- cost
- ability to repeat
- existence of data

Examples of simulators being used in Education currently

- Human Patient Simulator (HPS)
- iStan
- Emergency Care Simulator (ECS)
- PediaSIM
- BabySIM
- www.meti.com
- http://www.mayo.edu/simulationcenter/
- http://www.cvtc.edu/videos/asx/echtour.asx
- http://www.cvtc.edu
- http://www.ohiohealth.com/medicaleducation/riverside/cmei.htm
- Sweden: national certification course in basic laparoscopic skills:
- 4 day course, with 3 different modules (VR, box and live animal)
- UK: Dept of Biosurgery and Surgical Technology, Imperial College, proficiency-based VR curriculum for basic and advanced laparoscopic and endoscopic skills
- Asia Endoscopic Task Force (Michael Li)
- Japan Society for endoscopic Surgery
- US: Fundamentals of Laparoscopic surgery (FLS) by SAGES

Mobility

Higher education and research play a key role in fostering cooperation between the European Union and its neighbors. Universities build bridges across political, cultural and economic borders through student and staff mobility, research collaborations, and through studying and teaching foreign cultures. It is widely accepted that international collaboration enhances the quality of universities' as well as commercial companies' work. Capacity building within Europe and with its neighbors, the US and the rest of the world will lead to a better and more inclusive research and higher education community. This helps increase understanding between cultures and thereby contributes to stability and progress. In this frame, universities must drive developments in learning and teaching and this requires close collaboration with all **major stakeholder groups**, including national and European policy makers.

It is within this framework governed by the basic principles of academic (national and international) collaboration, cultural respect and understanding, and "research without borders" that the Aristotle University of Thessaloniki seeks to enhance the mobility for all its members (faculty, students, administrative personnel). Networking for purposes of research and training with all major stakeholders is considered to be of prime importance for any Medical School today and constitute high-level targets for the Faculty of Medicine of Aristotle University of Thessaloniki. Such networking includes mobility of students at pre- and post-graduate level as well as of teaching staff. This means that both students and professors from Aristotle University of Thessaloniki will spend time abroad but also foreign students and professors will spend time with our Medical Faculty.

Action plans

Faculty

- University teaching staff or staff from enterprises to teach at a partner university or enterprise abroad. Such an activity supports the professional development of teaching and non-teaching staff as well as the development of involved institutions. It may take the form of training events abroad (excluding conferences) and job shadowing/observation periods/training at a partner institution or enterprise, or at another relevant organization abroad.

- Scholarships targeted for medical education which would serve for faculty to travel to other institutions and observe their practices, as well as attend Medical Education conferences. Such scholarships presently exist, for example, through the American College of Surgeons.
- Institute Faculty exchanges between the Aristotle University and other Academic Centers in the US and Europe focused on the educational aspect of medicine with the goal of also using these methods within the classroom/amphitheatre or hospital ward
- Participation through scholarships or exchanges and collaboration with the major simulation centers in the US and Europe by junior faculty having the opportunity to complete a medical or surgical simulation fellowship, which will allow them to be active participants in the management of the simulation center
- Through exchanges with US and European institutions, which have had closer ties to the marketplace, there is an opportunity for our faculty to learn more about the financial and organizational aspect of bringing a research product to the marketplace.
- Train faculty on the importance and use of big data in the current electronic environment and identify ways to make best use of them. This would require the cooperation of Research centers in Artificial Intelligence in Europe and the US.

Residents

- Resident exchanges between institutions are an excellent way to experience not only the practice of medicine, but also how the training process is organized in a different place. Additionally, residents can use this opportunity to consider fellowships and further steps in their training, while at the same time creating long-lasting relationships with their international counterparts. Greece also has a lot to offer given the combination of diseases that are unique to Greece and the Mediterranean as well as the importance of Global Medicine and Surgery, as that has been defined by the WHO.
- Scholarships can also be more targeted ways of training, or at least obtaining a “taste” of training possibilities. Direct interaction with medical/surgical associations or academic centers in the US and Europe can lighten the bureaucratic obstacles. Additionally, another way to use these scholarships for training is for participation in one another’s National Medical/Surgical Meetings. For example, teams of residents are welcomed at the American College of Surgeons Clinical Congress and are also encouraged to participate in aspects of

the congress, such as the “Surgical Jeopardy” (knowledge game) where they compete against residents from the US and other countries

Students

- To ensure high-quality mobility activities with maximum impact on the students, the mobility activity has to be compatible with the student’s degree-related learning and personal development needs. Essentially, the study period abroad must be part of the student's study programme to complete a degree at a short cycle, first cycle (Bachelor or equivalent), second cycle (Master or equivalent) and third or doctoral cycle. It can include a traineeship period as well. Such a combination creates synergies between the academic and professional experience abroad.
- Medical student exchanges between institutions are an excellent way to experience not only the practice of medicine, but also how the training process is organized in a different place. Currently there exist exchange programmes (Erasmus and Erasmus +) which can serve as the basis for this.
- Scholarships can also be more targeted ways of training, or at least obtaining a “taste” of training possibilities. Direct interaction with medical/surgical associations or academic centers in the US and Europe can lighten the bureaucratic obstacles. Additionally, another way to use these scholarships for training is for participation in one another’s National Medical/Surgical Meetings. For example, teams of students are welcomed at the American College of Surgeons Clinical Congress and are also encouraged to participate in aspects of the congress, such as the “Surgical Jeopardy” (knowledge game) where they compete against students from the US and other countries.

Administrative personnel

- Exchanges between universities in the US and Europe so that knowledge can be shared.
- With the collaboration of the International Relations Committee of the Aristotle University and the International Relations Office, it could be possible to arrange for a meeting/seminar of administrative staff regarding issues such as: best practices, use of technology, big data collection and sharing, GDPR, budget challenges, continuous training, among others.

Aristotle University of Thessaloniki structures

For these scopes, the Aristotle University School of Medicine is strongly supported by the Department of International Relations and the Department of European Educational Programmes, which are responsible for enhancing, organizing and maintaining good relations between the University and the international academic community, as well as for promoting the University abroad, with the aim to reinforce cooperation and communication in the field of teaching and research.

The above goals are met by participating in International Organizations, Unions and University Networks, coordinating and implementing Bilateral Agreements between the Aristotle University and Universities all over the world, as well as by implementing the European Policy of the Aristotle University of Thessaloniki through the Erasmus+ programme and various other European Educational Programmes (Erasmus Mundus, Erasmus+ International etc.).

Expected outcomes

The mobility activities are expected to produce the following outcomes:

- improved competences linked to professional profiles;
- broader understanding of practices, policies and systems in education, training or youth across countries;
- increased capacity to trigger changes in terms of modernization and international opening within their educational organizations;
- greater understanding of interconnections between formal and non-formal education, vocational training and the labor market respectively;
- better quality of their work and activities in favor of students, trainees, apprentices, pupils, adult learners, young people and volunteers;
- greater understanding and responsiveness to social, linguistic and cultural diversity;
- increased ability to address the needs of the disadvantaged;
- increased support for and promotion of mobility activities for learners;
- increased opportunities for professional and career development;
- improved foreign language competences;
- increased motivation and satisfaction in their daily work.

Such activities are also expected to produce the following outcomes on participating organizations:

i) increased capacity to operate at EU/international level:

- improved management skills and internationalization strategies;
- reinforced cooperation with partners from other countries;
- increased allocation of financial resources (other than EU funds) to organize EU/international projects;
- increased quality in the preparation, implementation, monitoring and follow up of EU/international projects;
- innovative and improved way of operating towards their target groups, by providing for example: more attractive programmes for students, trainees, apprentices, young people and volunteers in line with their needs and expectations;
- improved qualifications of teaching and training staff;
- improved processes of recognition and validation of competences gained during learning periods abroad;
- more effective activities for the benefit of local communities, improved youth work methods and practices to actively involve young people and/or to address disadvantaged groups, etc.;

ii) more modern, dynamic, committed and professional environment inside the organization:

- ready to integrate good practices and new methods into daily activities;
- open to synergies with organizations active in different social, educational and employment fields;
- planning strategically the professional development of their staff in relation to individual needs and organizational objectives;
- if relevant, capable of attracting excellent students and academic staff from all over the world.

Collaboration with the industry

The School of Medicine, Aristotle University of Thessaloniki has started an initiative for a formal collaboration with the industry that deal with pharma and medical devices and its main Associations in Greece: the Pan-Hellenic Union of Pharmaceutical Industry and the American Chamber of Commerce. The scope of this collaboration will be the reinforcement of the relations between the University and its faculty members with the industry; the formation of consortia for performing clinical studies using the University's infrastructure and potential; the collaboration for training purposes of the companies using the staff and facilities of the School of Medicine and the other Faculties of the Aristotle University of Thessaloniki (such as the training courses of the American College of Surgeons); the establishment of fellowships and scholarships to young as well as senior doctors within the interests of the companies; the bridging between the academic medicine and the open market.

Moreover, the Basic and Translational Research Unit of the Center for Biomedical Research and Education (CBRE) of the School of Medicine, Aristotle University will enable collaboration between University faculty, researchers and companies that have interests in basic and translational research. Furthermore, the Precision Medicine Unit of CBRE will unite the stakeholders of research and therapy in the areas of Oncology, Cardiovascular diseases, Neurodegenerative diseases.

The collaboration between the School of Medicine, Aristotle University and the industry in novel scientific and emerging fields in the healthcare system, such as Biostatistics and Epidemiology, Genetic Epidemiology and Bioinformatics, Big Data, Health Economics, Artificial Intelligence, Genetic Testing, Omics, Big Data, Artificial Intelligence, 3D Printing, Robotics, Biomedical Engineer, etc has a huge prospective. Moreover, there is the potential for up-scaling the operating theaters of the University Departments according to the industry needs so as to form RND Centers of Companies assigned to the development and promotion of new medical devices. The University may also offer an RND department to companies that lack of it so as the companies would only need certification for their projects.

A **Scientific Officer** who will have a joined role has already been advertised and it is in the process of employment. The Scientific Officer will coordinate the common initiatives of the Pan-Hellenic Union of Pharmaceutical Industry and the School of Medicine, Aristotle University of Thessaloniki. He will be based in Athens, yet he will have physical presence and

work in Thessaloniki. His main work will focus on the preparation and implementation of common research projects between and the Pan-Hellenic Union of Pharmaceutical Industry and the School of Medicine, Aristotle University of Thessaloniki, the exploration of funding possibilities, the submission of research proposals to funding schemes and the coordination of the research projects. Moreover, the Scientific Officer will deal with the activities of the Centre for CBRE of the School of Medicine, Aristotle University of Thessaloniki towards common emerging fields of the University and the companies members of the Pan-Hellenic Union of Pharmaceutical Industry that work on biomedical research. He will be the contact person to the phase I clinical trials, studies of bioequivalence and/or therapeutic equivalence, pharmaco-vigilance and pharmaco-epidemiology studies that will be assigned from members of the Pan-Hellenic Union of Pharmaceutical Industry to the Clinical Trials Unit of the CBRE. Furthermore, he will coordinate the implementation of common educational programmes, and any other mutual project being of interest of the members of the Pan-Hellenic Union of Pharmaceutical Industry and the School of Medicine, Aristotle University of Thessaloniki.

A Scientific Officer with similar role is on the way to be announced by the American Chamber of Commerce, who will coordinate the implementation of mutual projects of interest between the members of the Chamber and the School of Medicine, Aristotle University of Thessaloniki.

Strategic Plan 2019-2022

During the last three decades, the role of universities has transformed to a significant extent. In most European countries there has been an increase in the autonomy of academic institutions as a response to the various economic and societal changes. Universities, as the main producer of knowledge and of those members of society who armed with this knowledge will become the spearheads of competition and innovation, are uniquely positioned to respond and adjust to the economica and societal changes, both at a national and an international level, so that they can rise to the expectations and the role that society has placed on them.

According to a recent study of Ernst and Young for the University Association of Australia, there are five "mega-trends" or "driving forces of change", which are expected to lead to the transformation of university education internationally:

- the democratization of knowledge and the increasing access to it, especially in developing countries
- digital technology
- increasing global mobility of students, researchers and academic faculty
- increasing competition to attract students internationally, uncertain governmental financial support and competition for international financing
- partnerships with the business community to create and provide knowledge, essential for improved financing, as well as for research collaboration.

The Aristotle University of Thessaloniki, in order to answer the challenges of the near future in higher education, acknowledges the need to create a Strategic Plan in a rapidly evolving international environment and in a national setting which has been marked by the deep financial and societal crisis of the last several years. The first step is to define the Vision and the Mission of the Aristotle University of Thessaloniki.

Vision: The Aristotle University of Thessaloniki to become an Excellent Public University with International Visibility and Acclaim

Mission: The mission of the Aristotle University of Thessaloniki, in order to fulfill its vision, is to offer education of the highest degree, in a university setting which is friendly to the environment and accessible to all, to produce internationally recognized research and to contribute to the financial and social development of the country.

In order to fulfill its mission, the Aristotle University of Thessaloniki is guided by the following founding principles:

- respect of people's rights
- freedom in research and education
- quality in education, research and any service that the University offers
- research and scientific ethics
- transparency in all functions and decisions
- effectiveness, efficiency and accountability in the management of available resources
- meritocracy in the election and promotion of faculty
- ensuring the health and safety of the personnel, workers, students, and visitors, including the prevention of any relevant danger
- the prevention and combat of any form of violence or bullying
- the combat of any type of discrimination
- the principle of equal gender treatment and the promulgation of real equality.

Strategic Architecture

Before proceeding with the Strategic Plan, it is essential to examine the external to the University (national and international) and the internal environment to identify possible Weaknesses, Threats and Risks, as well as Strengths, Challenges and Opportunities. These are presented in the following Table:

External Environment		Internal Environment	
Opportunities-Challenges Networking of global society • Freedom of access through the web to the whole corpus of codified scientific knowledge, make knowledge a public good • Global middle class is expected to reach 2.5 billion people in 2025 • Demand for university education • Creation of *Higher Education Open Space* • European Union Research Programmes (Horizon) • Programmes such as Erasmus Mundus • European Union Programmes which can be used to replace the lost governmental financial research support • Continuously increasing private sector demands for new technology and innovation. • The place of the Aristotle University in Thessaloniki, as well as in the greater Balkan area.	**Risks-Threats** • Geometric speed of occurring changes • Global tendency for decrease in governmental research and academic support • Regulatory and Legal Framework • Continuously decreasing funding • Status of the national economy • The new landscape of higher education after the recent mergers and the transformation by law, without the necessary resources, of Technological Institutes to Universities. • The increasing tendency of the state to interfere in the management of academic institutions	**Points of Strength** • Very big University with an impressively wide range of scientific fields • Positive Interest Groups • Research Faculty of highest degree • Faculty of the highest degree • Students of the highest degree • Quality of the undergraduate and postgraduate programmes • The location of the Campus in the center of the city • Full scale digital infrastructure of the whole campus, as well as one of the most advanced in the country • The wide range of services offered to support the educational, cultural and social activity. • Well functioning Research Committee • Experienced and extremely capable administrative personnel • Active part of the city, its life and its people • International network of academic collaborations	**Points of Weakness** • Organizational culture • Organizational model of the Aristotle University • Negative interest groups • Slow pace of applying educational changes and progress to the undergraduate studies • Problematic building and infrastructure maintenance • Aesthetic effect of the University Campus • Lack of adequate number of interdisciplinary and interdepartmental courses and programmes • Continuous decrease of human personnel and resources • Proportion of faculty to students

With the strategic development plan for 2019-2022, the of the Aristotle University of Thessaloniki is correlated with strategic goals and specific, realistic and measurable results are determined regarding the key parts of the mission of the University.

Overview

	STRATEGY	**STRATEGIC GOALS**
1	**Academic Development Strategy**	
		1.1. Continuous modernization of academic organization
		1.2. Continuous modernization of undergraduate studies -Periodic assessment and adjustment of undergraduate study programmes based on international scientific, economic and social developments -New teaching methods (e-learning, webinars, distance learning etc) -Inter-departmental courses -Introduction of practical skills and exercise at all levels of the educational process and for the highest possible number of students -Identify how many graduates continue with postgraduate education in top 100 institutions -Identify how many graduates are able to enter the job market -Identify the needs of the job market
		1.3. Competitiveness at the Postgraduate Level -Creation of a Postgraduate Studies Coordination Committee in order to plan the overall strategy for the Postgraduate Programme -Inter- and intra-departmental cooperation, as well as with other universities and academic institutions, Erasmus mundus in order to create Postgraduate courses at the Aristotle University -Establishment of foreign language postgraduate programmes -Gradual introduction of the English (and/or other ones) language in existing Postgraduate Programmes -Postgraduate Programmes of the Aristotle University occurring internationally either individually or in collaboration with local universities, ie Russia, USA, China -Identify trends in the international academic community -Plan in order to attract foreign students to the Aristotle University Postrgraduate Programmes -Identify resources of financial support for Postrgraduate students including research programmes or scholarships -Identify trends in the Greek society and economy -Offering Postgraduate Programmes to company and organization executives -Networking with different Chambers of Commerce -Include faculty from public or private sector organizations, according to the existing legal framework
		1.4. Competitive Lifelong Learning Programmes -10-year plan of the Lifelong Learning Department -Organization, faculty recruitment and practice determination -Identify suitable location at the University

		-Include Programmes for and from all the different Schools of the University -Include Programmes that involve the development of the local economy and society -Programmes targeted for different organizations and the business community -English speaking Programmes for foreigners
		1.5. Quality and Excellence in Education -Close follow-up and utilization of academic statistics and creating of specific measurable indices -Systematic follow-up of the student and faculty evaluations and presentation of conclusions and actions -Systematic evaluation of internal and external assessment evaluations and presentation of conclusions and actions -Systematic evaluation of any revisions to the curriculum -Creation of a "Teaching Support Office", articles 51 and 52 of N.4009/2011 -Close observation of a group of students -Close observation of a group of students from more vulnerable groups -Introduction of Tutoring system -Creation of the Faculty Mentor -Creation of the Student Advocate -Test different practices and methods in various departments or courses, ie computer examinations, use of e-Books, an exit interview -Application of the Academic Calendar -Introduction of Degrees of Excellence in Education (ie best teacher pre department, course etc.)
2	**Research Strategy**	
		2.1. Research at the level of top universities internationally -Provide motives for researchers to publish in higher impact journals -Research awards -Provide motives for researchers to publish in areas other than those included in the Web of Science, i.e. Law, Art, Philosophy -Systematic assessment and evaluation of the different research and publication indices of the various departments -Improvement of the position of all the different schools in the rankings -Creation of a "lab" for research paper writing for new postgraduate and PhD students -Editing service for thesis and PhD dissertations -Support of interdepartmental scientific collaborations and creation of multidisciplinary research areas -Support of researcher mobility in order to increase international collaborations
		2.2. Increase of Research Financial Support -Support of Informational Services regarding different types of research funding and how to obtain them -Research project management by non-faculty researchers, as well as outside the University community -Financial support (scholarships) of new researchers (postgraduate students) -Inclusion of research projects in the category similar to European projects (exempt from VAT) -Advancement of interscientific networking -Increase awareness regarding new research proposals going public

		-Increase collaboration with members/groups of the public and private sector regarding the writing and realization of different proposals -Development of certified laboratories as service providers -Increase knowledge transfer to Greek industry through the use of PhD thesis -Support faculty in developing research proposals
		2.3.Balanced development of all types of research (basic, applied, humanistic and social studies, etc) -Development of the Center of Interscientific Research and Innovation -Development of Centers of Research Excellence for the various schools within the University -Postgraduate scholarships -Special activities to support international scientific collaborations
		2.4. Quality and Excellence in Research -Increase in certified laboratories and those of service providers -Unification, simplification and improvement of the various research project management services -Creation of "open access" data
3	**Organizational Development Strategy**	
		3.1. Strategic Administration Development -Determination of goals, actions and strategies of the Institution -Development of strategic planning by all schools of the University -Create and follow milestones to observe the realization of the Strategic Plan -Development of Internal Regulation Code consistent with the Strategic Plan -Development of Internal Regulation Code for the different schools of the University -Building and Space infrastructure strategy -Environmental policy
		3.2. Administrative and Organizational Modernization -Planning of the new organizational structure so that it can respond to the challenges of the national and international environment -Development of list of credentials needed and duties to be performed for all administrative staff -Development of a complete logistical place. -Participation in the credentialing and certification process -Transparency and accountability in the various administration bodies -Oversight of the work of the various committees -Administration crisis management
		3.3. Modern management of human resources -Faculty and administrative staff transfers from other institutions -Personnel development (education, job rotation, educational leaves) -Development of motivations and rewards -Performance evaluation -Improvemen of the work space and environment -Creation of the Office of Personnel Technical Security and Work Health -Creation of a Gender Issues/Violence Office -Creation of Office of Intermediary for the University personnel
		3.4. Improvement of daily functions -Improvements regarding clean environment and security -Coordination with municipality and state offices
4	**Economic Development Strategy**	

		4.1. Continuous modernization of financial management -Budget creation for every administrative unit -Electronic record of funding requests and prioritization of those by each administrative unit -Completion of electronic records for the Financial Department -Simplification of competitive processes regarding acquisitions -Ensuring quality and transparency in the management of different projects -Collaboration with neighboring municipality regarding common areas of interest (parking, green etc)
		4.2. Improved management of the funds of the Research Administration Office
		4.3. Improved use of the University endowment -Creation of a business plan -Specific quantitative goals -Application of modern management methods -Complete recording of the endowment and all University assets -Financial evaluation of the worth of the University endowment and assets
		4.4. Improved management of the various inherited resources/endowments -Evaluation of the net worth -Development of a plan for the best use/management of these resources
		4.5. New Financing Sources -Creation of Endowed Chairs -Management of copyright and patents -Collaboration with institutions and foundations for specific projects, ie Library of the School of Philosophy, Arts Building) -Long-term borrowing for the completion of building infrastructure and renovation of others
5	**Building and Space Infrastructure Strategy**	
		5.1. Relocation of all academic units in University owned buildings
		5.2. Utilization and modernization of all building and technological infrastructure
		5.3. Improved use of educational infrastructure
		5.4. Imrpoved utilization of other infrastructure (Library, Student Dormitories, Athletic Center, Summer Camp etc)
6	**Environmental Strategy**	
		6.1. Decreasing the environmental footprint of the University
		6.2. Aesthetic and architectural upgrade of the University campus and area
7	**Internationalization Strategy**	
		7.1. International dimension to education and research
		7.2. Increased participation in international academic university networks
		7.3. Improved collaboration with international elite academic institutions
8	**Social Strategy**	
		8.1. Advancement of innovation and business
		8.2. Diffusion of research outcomes
		8.3. Improved participation in various academic networks

		8.4. Opening of the University to the city and improved collaborations
		8.5. Networking with Greek diaspora
		8.6. Alumni networking
9	**Student Care Strategy**	
		9.1. Development of a model for the housing needs of the students
		9.2. Improved services by the Student Club
		9.3.Office for the Coordination of Social and Athletic Student Activities
		9.4. Development of a model for health care services delivery to the students and the University personnel
		9.5. Development of a model for the delivery of services to members of the University with special needs

In order to achieve the strategic goals that are part of the Mission of the Aristotle University of Thessaloniki, the strategies described above are an essential part. It is necessary to record the current situation, quantify the result of the strategy and any actions involved, as well as the necessary resources.