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Turkish Journal of Biochemistry

Moleküler Yaşam Bilimleri Üzerine FEBS Çalıştayı: Geleceğin Bilim Adamlarının Eğitimi

5-7 Eylül 2018 İzmir

FEBS Workshop on Molecular Life Sciences: Training Tomorrow's Scientists

5-7 September 2018 Izmir

Türk Biyokimya Derneği'nin yayın organıdır
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HOŞGELDİNİZ MESAJI

Değerli Meslektaşlarımız, Sevgili Genç Bilim İnsanları,

5-7 Eylül 2018 tarihlerinde İzmir'de düzenlediğimiz "FEBS Workshop on Molecular Life Sciences: Training Tomorrow's Scientists" çalıştayına sizleri davet etmekten büyük bir onur ve mutluluk duymaktayız. Bu çalıştay, FEBS Eğitim Komisyonunun son on yıldır tüm Avrupa ülkelerinde düzenlemekte olduğu çalıştaylardan ve TBD eğitim etkinliklerinden kazanılan deneyim ile ülkemiz moleküler yaşam bilimlerinin gereksinimleri göz önüne alınarak özenle planlanmış olup, FEBS (Federation of European Biochemical Societies), IUBMB (International Union of Biochemistry and Molecular Biology) ve Türk Biyokimya Derneği'nin desteğini almıştır. İzmir Ekonomi Üniversitesi'nin ev sahipliğinde gerçekleşecek olan bu çalıştayın Düzenleme Kurulunda, ayrıca, Dokuz Eylül, Ege ve Gazi Üniversite'sinin değerli öğretim üyeleri/yardımcıları yer almaktadır. Çalıştayın başlıca amacı, moleküler yaşam bilimlerinde görev alan eğiticileri ve eğitilenleri bir araya getirerek, bu alanın eğitimindeki en güncel konseptleri, uygulamaları gözden geçirmek ve irdelemektir. İlk iki gün moleküler yaşam bilimlerinde eğitimin güncel boyutları ele alınacaktır. Ana konular, "Eğitimde İnnovasyon", "Elektronik Öğrenme", "Lisansüstü Eğitim" ve "Eğitim ve Araştırma" dır. Üçüncü gün, özellikle genç bilim insanlarına kariyerlerinde ve araştırmalarında yararlı olabilecek konular interaktif olarak işlenecektir. Programda, sunumların yanısıra, grup çalışmaları, panel tartışmaları ve poster/sözlü bildiri oturumları da yer almaktadır. Çalıştayımızın eğitici kadrosu, FEBS Eğitim Komisyonundan ve Avrupa'nın değişik ülkelerinden toplam 20 civarında uzman öğretim üyesidir. Hedef kitlemiz, moleküler yaşam bilimleri ile ilişkili öğretim üyeleri, yardımcıları, doktora/yüksek lisans öğrencileri ve diğer ilgililerdir. Çalıştaya gönderilen bildiri özetleri, genişletilmiş SCI kapsamındaki Türk Biyokimya Dergisi Özel sayısında yayımlanacaktır. Poster bildirisi kabul edilen lisansüstü öğrencilere, olanaklar doğrultusunda burs verilecektir. Son derece etkileşimli bir çalıştay'da görüşmek dileği ile sizleri 5-7 Eylül 2018 tarihlerinde İzmir'e bekliyoruz.
Saygı ve Sevgilerimizle

Çalıştay Düzenleme Kurulu adına,
Prof. Dr. Gül Güner Akdoğan
Prof. Dr. Ferhan Sağın
Doktor Öğretim Üyesi Ali Burak Özkaya

WELCOME MESSAGE

Dear Colleagues, Dear Young Scientists,

We are very proud and honored to invite you to the "FEBS Workshop on Molecular Life Sciences: Training Tomorrow's Scientists" organized in Izmir on 5-7 September 2018.
This workshop was meticulously planned to fulfill the needs of our country's molecular life sciences community, with the experience gained from FEBS Education Committee workshops organized in various European countries over the past decade and TBS training events, and is supported by FEBS (Federation of European Biochemical Societies), IUBMB (International Union of Biochemistry and Molecular Biology) and Turkish Biochemical Society (TBS). The workshop is hosted by İzmir University of Economics and includes distinguished faculty members / teaching assistants of Dokuz Eylül, Ege and Gazi University in the Organizing Committee. The main aim of the workshop is to bring together the trainees and educators involved in the molecular life sciences, and discuss the most up-to-date concepts, practices and applications of this field.
The first two days will cover the current aspects of education in molecular life sciences. The main topics are "Innovation in Education", "Electronic Learning", "Post-graduate Education" and "Education and Research". On the third day, topics that may be especially useful for young scientists in their careers and research will be covered interactively. The program includes presentations, group work, panel discussions and poster/oral presentation sessions.
The educator staff of our workshop consists of 20 specialist faculty members from the FEBS Education Committee and various European countries. Our target audience is faculty members, teaching assistants, PhD/MSc students and all others involved with education in the molecular life sciences.
Abstracts submitted to the workshop will be published in the Special Issue of the Turkish Biochemistry Journal (expanded SCI). Scholarships will be given to the graduate students with accepted poster presentations.
We look forward to welcoming you to İzmir on 5-7 September 2018!
Wishing for a highly interactive workshop!
Sincerely yours,

On behalf of the Workshop Organizing Committee,
Professor Dr. Gül Güner Akdoğan (FEBS Education Committee) (2009-2018) (Izmir University of Economics)
Professor Dr. Ferhan Sağın (FEBS Education Committee (2019-) (Ege University)
Assis. Prof. Dr. Ali Burak Özkaya (Izmir University of Economics)

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[SUPPORTING ORGANIZATIONS]

KURULLAR/COMMITEES

Organizatörler/Organizers

İzmir University of Economics
Federation of European Biochemistry Society (FEBS)
Turkish Biochemical Society (TBD)
IUBMB (International Union of Biochemistry and Molecular Biology)

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Miguel A. De la ROSA
Winnie ESKILD
Doğan YÜCEL
Tomris ÖZBEN
Nazmi ÖZER

PROGRAMME

Wednesday, Sept 5th 2018

09:00-09:30	Coffee and simit
09:30-10:00	Welcome and Opening Remarks

Session I: Novel Educational Strategies and Methods

Chairs: İlgi Şemin & Ayhan Çalışkan

10:00-10:05	Introduction
10:05- 10:30	How to Build an Organizational Culture that Values Education by Hakan Abacıoğlu, Turkey
10:30-10:55	Flipped Lectures in a Digital Environment by Jeremy Pritchard, UK
10:55-11:20	Coffee break
11:20-11:45	Team-Based Learning by Ferhan Sağın, Turkey
11:45-12:10	Engaging Students in Large Classes by Jason Perret, Belgium
12:10-13:15	Small Group Discussions
13:15-14:00	Lunch
14:00-14:30	Poster Viewing

Session II: Graduate Education

Chairs: Hüray İşlekel & Yasemin Gürsoy Özdemir

14:30-14:35	Introduction
14:35-15:00	MSc studies in Biosciences by Winnie Eskild, Norway
15:00-15:25	PhD Training: New Prospects by Gül Akdoğan, Turkey
15:25- 15:50	Good Supervision for Good Research by Hakan Orer, Turkey
15:50-16:15	Reflecting on and Recording Evidence of Acquired Transferable Skills by Luciane Vieira de Mello, UK
16:15-16:40	A Unique Example for External Supervisor and Examiner in MSc and PhD Programmes by Tomris Özben, Turkey
16:40-17:00	Coffee and Break into Groups
17:00-17:45	Small Group Discussions I
17:45-18:30	Small Group Discussions II
19:30- 22:30	Gala Dinner

Thursday, Sept 6th 2018

08:15-08:45	Coffee and simit

Chairs: Didem Kozacı & Hilal Batı

08:45-09:15	Short Presentations from Selected Posters

Chair: Gönül Peker

09:15-10:00	FEBS Special Lecture: Gender issues in Science and Education: theory and practice by Cecilia Arraiano, Portugal
10:00-10:30	Discussion session

Session III: Using Electronic Technologies in Education

Chairs: Aylin Sepici Dinçel & Mine Doluca

10:30-10:35	Introduction
10:35- 11:00	e-Med Activities in Charles University, Prague by Tomas Zima, Czech Republic
11:00-11:25	e-Med in Izmir University of Economics by Ali Burak Özkaya, Turkey
11:25-11:45	Coffee break
11:45-12:10	Virtual Laboratories by Angel Herráez, Spain
12:10-12:30	Using Proteopedia by Angel Herráez, Spain
12:30-13:15	Small Group Discussions I
13:15-14:00	Lunch
14:00-14:30	Poster Viewing
14:30-15:15	Small Group Discussions II

Session IV: Excellence in Education, Excellence in Research

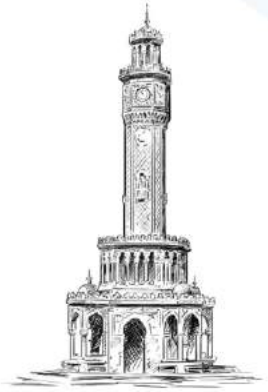
Chairs: Miguel A. De la Rosa & Günnur Dikmen

15:30-15:35	Introduction
15:35-16:00	Science Policy in Europe by Manolis Fragoulis, Greece
16:00-16:25	A Research Training Center Model: Weizmann Institute by Israel Pecht, Israel
16:25- 16:45	Coffee break
16:45- 17:10	Biology in the third millennium: tools, promises, challenges and ethics by Jean-Luc Souciet, France
17:10-17:35	Joint Research with the Industry by Jerka Dumic, Croatia
17:35-18:00	Panel Discussion
18:00-18:30	Closing Session

Friday, Sept 7th 2018

IUBMB Satellite Event: Research and Career Skills Workshop for Young Scientists

08:30-09:00	Coffee and simit
09:00-09:05	Introduction
09:05-09:30	Post-Graduate Academic Path by Beata G. Vertessy, Hungary
09:30-09:55	Post-Graduate Industrial Path by Jerka Dumic, Croatia
09:55-10:20	CV Preparation by Keith Elliott, UK
10:20-10:40	Coffee break
10:40-11:05	Writing and Publishing a Scientific Article by Félix M. Goñi, Spain
11:05-11:30	Writing a Research Proposal by Miguel A. De la Rosa, Spain
11:30-11:55	The Art and Science of Effective Oral Presentations by Ferhan Sağın, Turkey
11:55-12:20	e-Tools of trade for scientists by Ali Burak Özkaya, Turkey
12:20-13:30	Lunch and break into groups
13:30-14:15	Group Discussions I
14:15-15:00	Group Discussions II
15:00-15:45	Closing Remarks



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DAVETLİ KONUŞMACI ÖZETLERİ
[INVITED SPEAKERS ABSTRACTS]

IS-01
LECTURE FLIPPING AND THE DIGITAL ENVIRONMENT: VEHICLES FOR FEEDBACK

Jeremy Pritchard
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The education landscape is changing and programmes are now expected to deliver transferable skills alongside subject specific knowledge. The role of assessment has come under increasing scrutiny and needs to be both authentic and inclusive. Students are driven by summative assessment and require feedback on this work to improve their future performance. Often these requirements are captured in surveys such as the National Student Survey (NSS) and in the UK feed into league tables and so ultimately competition for students. This talk will introduce two different approaches to address the complex relationship between learning outcomes, assessment and the feedback that facilitates both student performance and satisfaction (Figure 1).

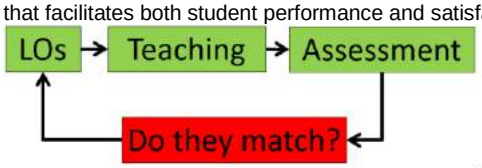

Figure 1

The first of these is a flipped lecture approaching a final year plant biology module. The initial (authentic) context was set out in a national strategy. Students were required to indicate which areas they deemed the most important. Responses were submitted online and class data was ranked to form the basis of the subsequent teaching sessions. For each student-determined sub-topic, session were held with varied delivery including group work, journal clubs, seminars and clicker quizzes. Students worked in groups, often in the virtual environment, to prepare for each flipped session. In parallel, students drafted, refined, and approved an exam question, which formed part of the final module examination. Student feedback was generally good but some students preferred the conventional approach. From this experience it is clear that facilitation of flipped teaching requires transparency, preparation and the need to be reactive. The second approach used formative assessment in a digital environment to deliver feedforward in a first year module. A weekly series of short answer questions similar to the exam were provided. Students answered the question and then ranked those of their peers using the online NoMoreMarking tool. The top answer was annotated and returned to them. This provided revision, reflection, evaluation and feedback in an efficient way for both staff and students. While uptake was initially high it dropped markedly during the semester (Figure 2), questioning how students perceive formative assessment in a largely summative environment.

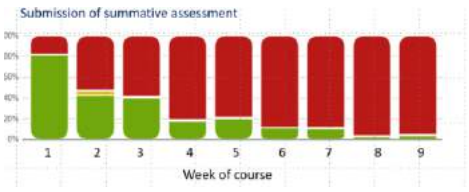

Figure 2

Overall, student engagement with online material did not correlate with exam performance, questioning the value of this approach to supporting students. However, the analytics around online engagement and performance allowed identification of differently behaving students groups and facilitates differential intervention to support them.
In summary, lecture flipping and online assessments are vehicles for provision of formative feedback/feedforward on summative assessment. Currently students are driven by summative assessment and clarity and transparency on assessment strategies is needed to ensure full engagement from them.

Status of UK plant science report (2014)
https://www.rsb.org.uk/images/pdf/UK_Plant_Science-Current_status_and_future_challenges.pdf

IS-02
TEAM BASED LEARNING: WHERE THE MAGIC HAPPENS WITH GROUP WORK THAT WORKS!

Ferhan Sağın
Ege University, Medical Faculty, Department of Medical Biochemistry, İzmir, Turkey
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Large group lectures are mostly ineffective in motivating students to engage and immerse themselves in higher-level problem solving. Thus, we need new instructional designs which emphasize the mastery of content in order to apply it rather than the traditional lectures which emphasize simple content covering. This transformation, from knowledge-focused curricula to a one in which the main goal becomes significant learning, requires the faculty to design and orchestrate learning activities and assessments that enable students first to master the knowledge and then apply it to complex problems. Team-Based Learning™ (TBL) is an active learning strategy that focuses on application of knowledge through a structured sequence of events (pre-class individual work, individual and team readiness assurance tests, application exercises and immediate feedback all through). This form of small-group learning that emphasizes student preparation out of class and application of knowledge in class can be used in large classes without requiring additional faculty or other resources. As an educational strategy, TBL has 4 essential elements – readiness assurance, design of application exercises, permanent teams, peer evaluation. In this sense, it is different from regular group work. By the successful application of these essential elements, TBL replaces or reduces lecture time, but at the same time ensures students are prepared for class, enhances higher order thinking and problem solving skills, develops effective teamwork and creates energy in the classroom.

IS-03
ENGAGING STUDENTS IN LARGE CLASSES

Jason Perret
Universite Libre de Bruxelles (ULB), Laboratory of Pathophysiological and Nutritional Biochemistry, Biochemistry Department, Faculty of Medicine, Brussels – Belgium

Many of us are confronted typically with large cohorts of students; essentially at the undergraduate level (bachelors), that are handled as large classes. This is an increasingly main challenge in higher education and namely in universities today.
Though over many years ample assessment of teaching methodologies have put traditional classroom lecturing at the end of the list in terms of quantity and quality of the student's learning process, this approach remains the foremost method of teaching.
This is essentially due to, in most cases for "historical", lack of authority incentive and will to change and finally often because of lack of sufficient resources (staff, materials, equipment and space). Consequently, there is no breakdown of these cohorts that remain "Large", into smaller groups, allowing to kindle the interest of the students, engage them to be proactive and interactive participation before and during the lectures and promote collaborative work amongst the students.
Though other alternatives to lecture based classroom teaching do exist, and are actively used, such as Problem based Learning (PBL), Team-Based Learning (TBL), Flipped classroom or e-learning, etc. … the universities engaged in such innovative teaching approaches still remain a minority.
Change will no doubt come over time from the outgrowth of these alternative methods, seeded by those universities already engaged in these alternative teaching approaches and the recognition of failure of current teaching methods to adequately prepare our young scientists. However until then, we must try to move on and improve the learning process within the current framework and especially when confronted with large classes.

Each of the above mentioned aspects of the learning process (interest, proactiveness, interactive participation during classes and collaboration between students), may be addressed and tailored for the large class constraint, i.e. by changing our lecturing habits and using today's tools and applications.
Some examples of such approaches and implementation in our current teaching process may be the use of virtual university web based tools, e-learning platforms, portable device and applications that will allow offering extra lesson materials, examples, quizzes, animations and simulation tools. These types of resources can be used before (proactive), during and after the lectures. During classes, the use of short animated clips could help to capture student's attention and interest. Likewise, interactive tools e.g. Plickers or Socrative, can allow polling questions to stimulate student attention and involvement as well as assess capture of key points.
Lecturing Large Classes will remain a wide spread teaching method, however strategies to improve student engagement, interest and especially knowledge acquisition, can evolve and profit from available new tools and approaches.

IS-04
MSc STUDIES IN BIOSCIENCES

Winnie Eskild
Department of Biosciences, University of Oslo, Norway

To enable students to study for part of their education in other European countries, the Bologna Process was launched with the Bologna Declaration of 1999. The Bologna guidelines, which have been implemented in 48 European countries aim to improve the internationalisation of higher education by standardising BSc, MSc and PhD programs, thus allowing comparison and approval between countries. Generally the MSc is a 3 + 2 structure, meaning that students first complete a 3-year BSc program before entering a 2-year MSc program. Each of these programs comprises course modules assigned ECTS (European Credit Transfer and Accumulation System). Sixty ECTS equal 1 year of full-time studies. The BSc is generally 180 ECTS and the MSc 120 ECTS. Some variability occurs regarding the MSc, which varies between 60 and 90 ECTS among countries and institutions. The scope of MSc programs is to bring the students to an advanced level of knowledge and competences in a specific field of study. In general, a Bioscience MSc comprises both theoretical and practical courses in addition to a scientific project, forming the basis of an MSc thesis. Among the theoretical courses some may have the purpose of improving a student's general knowledge, however the major part is aimed at gaining specific knowledge. When initiating the MSc project period, the student either chooses or is assigned a supervisor. In this phase the student works closely with the supervisor more or less as an apprentice. Further, the supervisor is responsible for introducing the student to the scientific world including how to create networks, write a paper, give a lecture and build a CV. To maximize the outcome of this collaboration, it is very important the supervisor and student get along well on a personal level. At least in the Scandinavian Countries an MSc project will typically be part of the supervisor's project.

IS-05
PhD TRAINING: NEW PROSPECTS

Gül Güner Akdoğan
Graduate School of Health Sciences, Izmir University of Economics, İzmir, Turkey
akdogan.gul@ieu.edu.tr

PhD is the title conferred to candidates who have completed an original research work and contributed to the scientific literature with published papers. The careers awaiting PhD holders have changed over time. It is no longer only an "academic" title. PhD holders nowadays can find an array of different jobs ranging from the academic positions to the industrial and governmental sectors. Moreover, many European countries can no longer offer purely academic positions to the trained PhD's, as the numbers have notably increased over time. All this necessitates a new perspective for PhD training. In Europe, the Bologna process has focused on PhD training since the Berlin meeting. EUA, with its Council on Doctoral education, has been working on PhD projects since more than a decade. ORPHEUS (Organisation for PhD Education in Biomedicine and Health Sciences in the European system) specifically addresses PhD training in the health science fields, which demand some more specified criteria. When analysed systematically, all these important organisations have attached importance to the following issues: "PhD is a research degree" (training should be based on "research"); "PhD training should not only prepare for academic life, but also for other careers" (therefore, transferable skills should be part of the PhD training programme); internationalization of PhD training is crucial (thus, mobility should be encouraged and the thesis jury should also be international); supervision has a pivotal role in PhD training (supervisor courses should be structured); the benchmark for a PhD thesis should be scientific articles published in international journals (thus, criteria for a thesis degree should be well defined). This talk will cover on overview of all these issues and the Group Discussion will be based on the elaboration of certain points as well as discussion of the PhD training status in Turkey.

IS-06
GOOD SUPERVISION FOR GOOD RESEARCH

Hakan S. Orer
Koç University, School of Medicine, Istanbul, Turkey

Research lies at the center of the doctorate education. A vibrant research atmosphere is essential. Ph.D. studies can be conducted where sustainable research activity exists. The two primary outcomes of the Ph.D. education are the thesis, which shows the student's contribution to the science, and the graduate (Ph.D.), who thus becomes an independent researcher. Graduate students are aspiring researchers who need guidance. The old-school doctorate education claims an academic leader, akin to the old master-apprentice system, to guide the student all the way to the dissertation in full academic freedom. The supervisor, often also the mentor, represents the establishment and occupies a higher status which creates a power distance between him/herself and the student. However, as the study progresses, that distance should fade, and in the end, the student becomes on equal terms with the supervisor. From the supervisor's angle, the management of this relationship needs a specific set of skills. The transition from student-to-colleague may create unanticipated conflicts that may compromise the thesis. It is imperative that the supervisors be actively engaged in research activity. However, besides the scientific aspect, supervisor's ability "to supervise" plays a crucial role in the making of a doctorate. Increasingly, collaborative nature of the research imposes the intervention of a unit of supervisors rather than a single one. Although the supervisor-student relationship has long been considered a solely academic issue, increased industrial sector involvement transformed it into a more market-oriented partnership. ORPHEUS (Organization for Ph.D. Education in Health Sciences in European System), a pan-European platform to discuss and promote best practices in Ph.D. education in health sciences emphasizes the role of the supervisor in the success of the Ph.D. programs. Good scientists do not necessarily become good supervisors, but with training and practice, they can improve their supervision skills. Institutions should develop training programs for supervisors and set up administrative mechanisms to monitor the supervision process. Most institutions allow students to choose their supervisors. However, it is not comfortable to break up once matching is made. Institutions prefer not to interfere with the supervisor-student relationship. Some institutions appoint a mentor besides the supervisor to deal with non-scientific aspects of the Ph.D. education. Recently, spearheaded by some American and Scandinavian Universities, more institutions adopt the signature of a formal contract between the student and supervisor to determine respective duties and responsibilities. The formulation of an explicit mechanism to deal with mutual grievances is also relevant. Bylaws and regulations covering all facets of the Ph.D. education need to be clear and transparent.

IS-07
REFLECTING ON AND RECORDING EVIDENCE OF ACQUIRED TRANSFERABLE SKILLS

Luciane Vieira de Mello
School of Life Sciences, University of Liverpool, UK

Studying off-campus, placements enable students to develop a range of skills that demonstrate their independence and adaptability, and enhance their academic and employability prospects (Messelink et al., 2015). The value of a placement experience is enhanced when the experience is systematically assessed (Beard, 2007). In the postgraduate module described here, the off-campus students write a weekly reflective log describing their personal and academic experiences and link them to key employability skills. On their return they write a final report describing the socio-economic drivers of the research and the potential impact of the research on local communities. E-portfolio system supports this online reflective log. The e-portfolio forms contain specific elements for students to complete, which are then read and evaluated on-line by supervisors who provide timely feedback and suggestions for improvement. This log also includes a skills audit, highlighting both the scientific and personal skills that have been developed during the placement. Monitoring students' ongoing performance is important in order to encourage formative feedback and dialogue between students and University academic supervisors, as well as encouraging students to take responsibility for their learning. Here we describe the evaluation of the student experience during these placements within an international university or national partner organisation, and the module assessment system. Data were collected using a questionnaire and a focus group, and several themes emerged from the analysis. First, results showed that taking part in the placement and conducting their own independent research at the host site helped students to make connections between their scientific knowledge, otherwise constrained within the walls of the University lab, and the wider impact of their research on society and people. Another theme was about career choices and aspirations, and the placement experience either confirmed prior choices or opened new horizons. Students were able to appreciate a wider range of research settings (e.g. research-support or mix of clinical & research), of which they were previously not aware. In relation to the assessments, students stated that the online reflective log helped them to feel supported by the university academic, while weekly feedback on work challenged them to reflect on the scientific and personal skills gained. Students agreed that they had further developed their employability skills (as determined by a skills audit) during the placement. Students acknowledged it was challenging to have to acquire evidence of skills development and to discuss the socio-economic impact of their work in the final report. However, they appreciated the usefulness of this reflection in relation to their future careers. In addition, many students commented that writing the weekly logs helped with writing the final report.
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IS-08
EXTERNAL EXAMINERS, SUPERVISORS AND ACADEMICIANS FOR THE INTERNATIONAL POSTGRADUATE (MSc and PhD) PROGRAMMES

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Several International Universities are appointing External Examiners and International Academicians as Lecturers and Supervisors for their Post-graduate (MSc and PhD) programmes. The General Academic Regulations of the University of Zimbabwe, College of Health Sciences provide appointment of External Examiners "to moderate all formal examinations" for MSc programmes. The University normally appoints External Examiners for a three year cycle during which the External Examiner will moderate examination papers every year, but will visit the institution every other year to participate in the examination process. Appointment of External Examiners is made by the Senate on the recommendations of the Departmental Boards based on the high academic standing and CV.

The main duties of an external examiner are:
•to evaluate all forms of assessment which contribute to students' degree results;
•to evaluate, and help ensure fairness and consistency in the assessment process;
•to moderate summatively assessed work at module and programme level;
•to comment on draft examination papers and assessment tasks as appropriate;
•to report on the structure, content, academic standards and teaching of programmes;
•to comment on any alleged cases of assessment irregularities.
Each External Examiner is requested to provide a confidential written report at the end of his examining duties to the Vice Chancellor on email and not to the Chairpersons of Departments or anyone else. External Examiners are encouraged to make any comments they wish, including observations on teaching, course structure and course content, as well as the examinations themselves. Postgraduate PhD programmes at the University of Modena and Reggio Emilia provide advanced research and professional skills to highly qualified students. International academicians for the programs are appointed annually based on an evaluation for a high academic standing. Many of the programmes are jointly coordinated with national and international partners and all doctoral programmes offer the opportunity to spend time abroad for research and internships. Admission is based on an examination. All doctoral programmes at University of Modena and Reggio Emilia begin on November 1 and last three years, and no fewer than 50% of the students enrolled in the programmes receive full scholarships.

IS-09
GENDER ISSUES ON SCIENCE AND EDUCATION: THEORY AND PRACTICE

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Gender: refers to the social attributes and opportunities associated with being male and female and the relationships between women and men and girls and boys, as well as the relations between women and those between men. These attributes, opportunities and relationships are socially constructed and are learned through socialization processes. They are context/ time-specific and changeable. Source: UN Women, available at Concepts and Definitions
There are intrinsic biological differences which contribute to diversity of points of view. Diversifying problem solving styles, and widening perspectives on possible solutions is always positive. The participation of women in science and technology needs to be promoted since it has shown to contribute to increasing innovation, plus quality and competitiveness of scientific and industrial research. Furthermore, there is the need to advance and benefit from gender-sensitive research in innovation and development.
Education is the basis of all socio-economical progress. Towards the inclusion of a gender perspective in education can lead to advances in any society and gender gaps have to be avoided so as man and women have the same opportunities.

IS-10
E-MED ACTIVITIES IN CHARLES UNIVERSITY

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Medical faculties in the Czech Republic and Slovakia have developed a strategy for the construction of a network in 2006 and Chaler University was a leading institution. Instead of a new centrally organized consortium they created the network from the bottom up. MEdical FAculties Educational NETwork - MEFANET represents a strategy for preparing and sharing electronic educational materials.
MEFANET offers a common gateway to educational objects created by any member of the network. There are sofisticated tools for classification of the content, sharing it and controlling access. All activities of MEFANET are coordinated by an advisory board of faculty deputies. MEFANET has proven to be cheaper, more viable, self-regulating and

self-assessing strategy compared to other approaches and centrally-organized institutions which is opened to to 26 000 students.
MEFANET cover three main platforms for collaboration and sharing educational objects. As the first, it offers a common gateway to e-publishing web portal. Sophisticated tools for classification of the content, sharing it and controlling access are implemented in the common gateway. The second one is a common installation of learning management system (LMS) Moodle. The third and most surprising one are WikiLectures – a tool for crowd sourcing of educational sources. MEFANET is community of people, not only a portal to depositories and it consists of more education tools than portal to learning sources. MEFANET is open for the medical schools of any other country. WikiLectures (WikiSkripta in Czech, www.wikiskripta.eu), are very opened ensuring maximally effortless contributing and fast updates. WikiLectures are not a dictionary as Wikipedia is; they are rather a text-book with well-defined target reader and specified learning objectives. WikiLectures contains more than 9600 "chapters" and this number is permanently growing. WikiLectures encountered over 40 000 visitors annually. English version is ready and freely opened. WikiSkripta is a vibrant academic community

IS-11
E-MED: AN E-LEARNIG PLATFORM TO AUGMENT AND EVALUATE MEDICAL EDUCATION

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Electronic learning is an educational model in which computing, internet and related tools are used to augment and mediate teaching and learning. We have implemented e-learning in our curriculum not only as a tool for effective learning but also as an integral part of both execution and evaluation of the medical education program. We have built the platform (E-MED) on Blackboard, one of the most common learning managements systems, using almost all functions of the software including customized page design, learning modules, surveys, assignments and assessments. However, the real distinction of the E-MED platform arises from the use of the software's two less known functions: the analytics module and the goal alignment feature.
Analytics module enables close monitoring of student activities within Blackboard course pages as well as student grades obtained from various assessment pieces. We have implemented an advisorship program in which advisors have access to statistical reports of the students in real-time, making it possible to detect patterns of decline in an earlier point and intervene promptly. Advisors discussed these reports with the students in regular meetings and gave feedback in order to improve their performance. The second mentioned function, goal alignment, has been used to introduce all course outcomes of the medical education program to Blackboard. These outcomes then have been aligned to all electronic materials uploaded to the system including presentations, multimedia tools, book chapters, articles, assignments and test questions. Aligned assessment pieces are especially important because with the use of analytics tools we are able to produce reports detailing success of the students in an outcome-based manner. Therefore, for each outcome, we obtained a report containing student success rates which was used in course and program evaluation processes. In conclusion, we have constructed E-MED in order to fully use the advantages of electronic medium in augmenting and evaluating medical education by using outcome alignment and analytics. We believe that this model can be used for future initiatives seeking an analytical way of executing advisorship as well as course and program evaluation. This talk aims to explain key elements of the E-MED platform. Discussion session is preserved for live-demonstration of the system as well as a Q/A session.

IS-12
VIRTUAL LABORATORIES: A TOOL TO SUPPORT LEARNING

Angel Herráez
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Teaching laboratories often lack the resources to accommodate hands-on experimentation on many modern types of analyses and techniques. This may be due to limitations in the accessibility to suitable samples, lack of equipment, or safety measures that would need to be implemented. There is hence a need for means to provide complete and up-to-date training for students even when real experimentation is not feasible. One solution to fill such a gap is the use of multimedia resources that display such experiments or techniques, another is to run computerised simulations of the experiments. This is useful but still does not provide the full experience; it is particularly desirable to have true spaces for experimenting, in the form of open-ended virtual laboratories, rather than watching animations or videos that always progress in the same way and end with the correct or expected result. Such an open exploration may be very significant for assimilation of the underlying scientific concepts, both methodological and analytical or diagnostical, and to gain relevant professional abilities like experimental design, observation and analysis of results. In this talk, these features will be highlighted while presenting some available resources. Particular attention will be devoted to demonstrate environments that allow users to design their own experiment and explore conditions, amounts, combinations with results that are not prefabricated, but depend on the actual conditions used.

IS-13
USING PROTEOPEDIA IN YOUR TEACHING OF BIOMOLECULAR STRUCTURE AND FUNCTION

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Molecular structure is an inherent part of nearly any lesson in biochemistry, necessary to understand both the properties of biomolecules and the interactions among them. There are, however, limitations in this understanding when the student is presented only with two-dimensional depictions of biomolecules, particularly so for bigger ones like proteins and nucleic acids. The use of three-dimensional molecular representations and the possibility of interactively exploring such molecular models are of great help in perceiving multiple issues of structure, interaction and, consequently, function. In this respect, the Proteopedia website offers ready-made materials, free to use, as well as a platform to develop new ones. This talk will provide an introduction to Proteopedia, its content and features, and several ways it can be used in the educational process. Particular attention will be put into how to make profit of Proteopedia, on the one hand to support teaching and on the other hand to entice students towards learning about the structure of biomolecules in an interactive, content-rich medium. In the associated small group session, attendees will have a chance to request more information and also to practice creating their own material in Proteopedia.

IS-14
EUROPEAN SCIENTIFIC POLICY IN LIFE SCIENCES SUGGESTIONS FOR THE FP9

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FEBS Science and Society Committee

European Scientific policy was for the first time politically endorsed as a major driver for the future of the Europe at Lisbon summit meeting of Heads of State and Government of the European Union in March 2000. "The Lisbon Strategy" as it became known announced a bold agreement by all EU states to work "Towards making the EU the most competitive and dynamic knowledge based in the world, capable of sustained economic growth providing more jobs and achieving greater social cohesion" Progress in the basic science was then recognized as being as important as innovation.
As is obvious this decision stimulated the scientific community to collaborate in Science Policy issues in order to achieve the goals set up for the "European Research Area" (ERA) Recognizing the need for scientists to act collectively in order to contribute to shape the future of Science Policy in Europe, a Pioneering group of European scientists emphasized the need to join forces with other international organizations, to work forwards for the creation of European Research Council with the aim of supporting basic Research.

In September 2005, under UK presidency the political decision was taken to create the ERC for the funding of basic sciences, including social sciences and humanities, by the FP budged. The funding should based on no other criteria than Scientific excellences as defined by independent peer review process as required by the scientific community.
However, two common key points were not included in the initial political agreement and in fact these are still open i: The creation of the ERC as areal European Institute ii. The creation of a mechanism preferably under the ERC umbrella to fund collaborative (Bottom up) basic research. Today such a position still acts as a powerful blocking factor against greater contributions by scientists to scientific strategic steering of EU science policy.
Anyhow campaign for the creation of ERC and for the funding of bottom up research by the EU-FP exclusively on scientific ground was a unique event in the history of European Science policy. Initially, this was a movement led by some large European Scientific Societies like FEBS and other Euro Science federation joined by a few rather independently managed organization as the ESF, EMBO etc. As well as individual scientists.
Horizon 2020 was Europe's flagship programme for research and Innovation. Among the main objectives of the program were leverage excellence and foster cross border collaboration, boost the European Health and wealth, close the gap between research and market. Although Horizon is an interesting programme the scientific community has faced it with scepticism. As can be seen from the results of the mid-term evaluation, among the main points of criticism are: the low percentage of the budget available for basic research, the overall success rate below 13% (compared with ~20% for FP7), high bureaucracy and problems with reviewer selection.
Towards shaping of FP9 the commission appointed a committee called "Lamy high level group" for suggestions. The committee made eleven recommendations and the general group mandate was: "To formulate a vision for the future EU research and Innovation, to draw strategic recommendation on maximizing the impact of EU R&I programmes in the future".
In the same time Scientific federations between them "Alliance for Biomedical Research in Europe whose FEBS is full and very active member made important recommendations for the EU's ninth framework programme between them: Strongly support the lamy report's recommendation in double the overall budget of the next framework programme advocating dedication of 25-30% of the FP9 budget to biomedical and health related research, increased funding for ERC and basic clinical and translation research, improving the low success rate of application through balanced and broader calls, as well as a rigorous selection at 1st stage and continuity in funding for successful networks established in previous frame work programmes.

IS-15
A RESEARCH TRAINING CENTER MODEL: THE WEIZMANN INSTITUTE OF SCIENCE

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The Weizmann Institute conducts research and offers graduate education in the breadth of scientific disciplines, with an emphasis on cross-disciplinary investigation. The Weizmann Institute is comprised of five faculties, constituted of 18 departments and additional service units. The Faculty of Chemistry advances the dream of Dr. Chaim Weizmann, an organic chemist, who was the original visionary of the Institute. Research in the Faculty is ranging from theory to experimentation, and from the Nano to the planetary scales. The Faculty of Physics advances research in the physics of complex systems, condensed matter physics, and particle physics and astrophysics. There is about an equal number of experimentalists and theorists. The Faculty of Mathematics consists of the Department of Mathematics and the Department of Computer Science and Applied Mathematics. The research carried out in the faculty ranges from abstract and theoretical studies within mathematics and computer science, through using and applying mathematics and computer science in other sciences, to their application in concrete industrial developments. The Faculty of Biology together with the Faculty of Biochemistry, span research efforts towards understanding of life at all levels, from the molecule to the cell and the entire organism, from immunology, the human brain, to the body's development and regulatory processes. Biochemistry research focuses on the processes of life at the levels of molecules, cells, organs, organisms and ecosystems. At the basis of all these levels of organization are the biomolecules, including DNA, RNA, proteins, polysaccharides and small molecules. Graduate studies at the Weizmann Institute of Science are conducted through its Feinberg Graduate School which awards M.Sc. and Ph.D. degrees in life sciences, chemical sciences, mathematics and computer science, and physics. It also awards non-thesis MSc degrees in science education. Graduates go on to senior positions in academia and industry. All students are integrally involved in research conducted at the Institute, working collaboratively with faculty members and postdoctoral fellows. All students receive full scholarships and living stipends so that they can devote their time to research and study.

IS-16
BIOLOGY IN THE THIRD MILLENNIUM: TOOLS, PROMISES, CHALLENGES AND ETHICS

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The early 2000 were characterized by the publications of several eukaryotic genomes of major importance (*Homo sapiens* or Arabidopsis *thaliana* for examples, even if the Saccharomyces cerevisiae genome was previously released in 1996) and at the time they were considerate as a critical data sets for future functional analysis. However, an incredible number of new high-throughput technologies (genome, transcriptome, proteome, interactome, metabolome, etc.) directly related to the development of new bioinformatics approaches have emerged each couple of years. The massive usage of these new tools is at the origin of a tremendous acceleration of biological information: an incredible burst of knowledge.
We proposed to observe how few of these new tools for deciphering life have introduced changes to conduct biological analysis; to reveal what was hitherto the domain of the unknown (gut, deep ocean); the link between traditional description of living organism and their genome (the come-back of Natural History); the positive and negative role of "model organisms".
Due to the genomic tools, the biodiversity so frequently cited but still widely unknown, starts to reveal its incredible complexity. The corresponding data have strongly modified the tree of life and in addition revealing how important is the horizontal transfer of genetic elements. These incredible new data sets, scientifically interpreted, could be used for potential positive application for the human societies as for examples identifications of a new generation of antibiotics; improving teaching efficiency based on brain imaging that facilitate a better understanding of the human brain function in space and time; production of cereal genomes fully sequenced and annotated (wheat for example) is a perfect data set to do breeding in a knowledge-based way. In addition genetics tools are used to determine both the function of genetic elements but also to modify all kinds of genomes. This last point was discussed as an important bio-ethical question (43rd FEBS Congress, Prague 2018, July). The consequences of this burst of knowledge are multiples, the high production of data introduce the notions of: data bank quality (EMBL-EBI for ex.), long-term storage of all data, quality of publications and accessibility (paywall and unpaywall), misconducts, fake science, plagiarism and intellectual property. Another consequence for our working group: what to be teach in the future in molecular science education? This is a very important open question.
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IS-17
JOINT RESEARCH WITH THE INDUSTRY

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During the last few decades the shift from uni-directional flows of funding and innovation between government, academia and industry to the

Triple Helix concept, characterised by multi-directional flows of knowledge, financial resources, and social benefits, resulted in improvement of the academic-industrial collaboration. Yet, academia is still more focused on teaching and research, while industry tries to articulate and meet the consumers' needs. However, due to the Triple Helix concept, the strategic mission of universities has moved beyond education and research toward a "third mission" related to technology absorption, adaptation, and diffusion, as well as the improvement of collaboration with industry and direct contribution to the economic growth and development (1). Yet, the further enhancement of the collaboration between academia and industry is crucial for the improvement of education and training as well as skills development, but also because it enables generation of new knowledge and provides its acquisition and application (innovation and technology transfer) (2). The collaboration between universities and industries also promotes entrepreneurship through the start-ups and spin-offs establishing. Furthermore, there is a wide range of benefits rising from university-industry collaboration such as achievement of synergies and complementarities of scientific and technological capabilities, expansion of the relevance of research carried out in public institutions, promotion of the commercialization of public research and development (R&D) outcomes, and increase the mobility of labour between public and private sectors (2). Academic-industrial collaboration and technology transfer play especially prominent role in biomedical sciences e.g. through advancing the development of new drugs and other biomedical technologies. Although it can result in both important public health benefits and a source of income for universities, some ethical concerns, particularly when research involves human subjects, may raise (3). Despite multiple and wide-reaching benefits of the collaboration between academia and industry, the historically defined missions of these two "cultures" (education and discovery driven by intellectual curiosity vs. translational research, commercialization, and profit making) still upbear walls between them. This is why, it is of utmost importance to undertake measures by both parts, but particularly by the government that will promote, encourage and facilitate academic-industrial collaboration. Some of them are the policies that promote university-industry collaboration; R&D incentives and grants; performance-based funding of universities and reward systems for researchers; intellectual property rights regime and technology transfer offices; science parks, spin-offs, and business incubators, but particularly supporting the enhancement and improvement of education and training in accordance with the industry needs (2). However, beside the governmental measures that are undoubtedly important, both academia and industry should recognise the advantages and mutual benefits of collaboration and actively contribute to its establishing and development. For the beginning, universities should consult industry in curricula development, offer entrepreneur¬ship educational contents, promote joint supervision of PhD students, while industry should explore capacities of researches conducted at the universities, offer more internships for the students, encourage participation in teaching among the experts, shear the state-of-the-art technologies with academicians etc.

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IS-18
POST-GRADUATE ACADEMIC PATH TIPS FOR YOUNG SCIENTISTS

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For young scientists, the relevant choice of adequate postdoctoral position will greatly contribute to building a successful research carrier. How to ride the good tide is a complex problem wherein – in optimal cases - supervisors and the young scientists need to work together.

This talk will focus on the academic possibilities of guiding your career forward. In this aspect, the choices are more numerous than it seems. Within a postdoctoral opportunity, you can actively shape your career by considering how the scientific job can be complemented by additional science-related activities. Making the most of your postdoc is a complex challenge and this talk will address some helpful tips to achieve this.
There are numerous issues to consider both on behalf of the young scientist who wishes to apply for a postdoctoral position as well as for the senior scientists (previous and future supervisors). First of all, it is of high importance that the supervisor recognizes the need of the young scientist to pursue independent research in a new field and in a different lab. The supervisor may facilitate choice of the cognate and relevant future host for the young scientist relying on their research network.
Also, the supervisor can help the young scientist by proposing new research fields and promoting possibilities in applications for postdoctoral studies, and may contribute greatly to all aspects listed below. However the major part and responsibilities lie with the young scientists themselves.
Among these responsibilities, some of the most important factors are the following:
1 Identification of interesting, currently yet open, and widely influential research areas
2 Finding a good postdoctoral position, with a relevant supervisor who is capable of building a mutually beneficial partnership with the young scientist. In this respect, carriers of previous post postdoctoral fellows in the lab will be highly revealing.
3 Working on publication skills. Publications are of course the very measure of the success of research studies, so care needs to be taken to proceed with these skills both in manuscript writing and conference presentations
4 Consideration of future possible carrier stages, choice and preparation.

IS-19
POST-GRADUATE INDUSTRIAL PATH

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Pharmaceutical and biotechnology industry positions have become more attractive to many recent graduates but especially PhD graduates, and consequently highly competitive. According to the Nature's 2017 Graduate Student Survey more than half of the respondents said that, they would like to work in industry, and nearly one-quarter said an industrial position was what they most wanted (1). Unfortunately, the reports from the employers from pharma and biotech industry indicate the existence of a considerable gap between the skills required by employers and those possessed by recent graduates (2). Therefore, an adequate education and training, as well as skills development that will meet the industry needs, on both graduate and postgraduate level, have become a huge challenge for the universities but also for PhD supervisors. On the graduate level, curricula are predominantly created by the faculty members/academicians thus reflecting their views and expectations, in most cases without consultations with industry. Consequently, curricula might or might not be aligned with student needs upon graduation and entrance into industry positions. Some survey revealed that academic research environment appreciates more knowledge in basic sciences and skills in laboratory and research methodologies, whereas industry appreciates more communication skills, skills related to teamwork and self-efficacy. Yet, both environments equally appreciate skills related to problem solving, self-directed learning, and having a big picture (2). Thus, it is hard to expect from academicians to create and to run curricula that will enable to students the development of the skills needed for the successful industry career, without close and tight collaboration with the colleagues from industry. On the postgraduate level, the problem is relinquished to the supervisors, who often do not have any experience with industry, so not being aware of skills needed for industry positions. The Nature's 2017 Graduate Student Survey revealed students' dissatisfaction with supervisor's advising regarding student's careers outside academia, encouragement to attend career training and events, and help with finding future employment, in more than 30% of respondents (3). Thus, many recent graduates are left to themselves regarding the recognising and developing skills needed for industry career. Therefore,

universities/faculties should offer training created by professionals and in collaboration with industry that would be part of PhD training as an elective course. If we go further, special PhD programs could be created, as a joint venture of universities and industry that should include contents regarding intellectual property and commercial product development, start-up business practices, project management, and soft skills such as, communication and interpersonal skills, self-efficacy, teamwork etc. Taken together, both academia and industry facing a huge challenge in creating a workforce that will meet the needs of the industry, but above all to contribute to the economic growth and development.

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IS-20
CV PREPARATION: HOW TO MAKE THE MOST OF YOURSELF!

Keith Elliott
FEBS Education Committee
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Your curriculum vitae will probably be the first information a potential employer has about you. A curriculum vitae may also be required when applying for grants and fellowships. It is important to create a good impression and make the most of what you have achieved – making sure that the right information is presented in a logical order, with appropriate emphasis. There is no one correct way to write a curriculum vitae, but there are lots of potential pitfalls that should be avoided. Each application requires a different curriculum vitae, often needing significant rewriting. Preparing a curriculum vitae is like writing a paper and should be given similar care and attention. It should provide evidence of your skills and abilities and not simply be a list of degrees. The talk will give hints on how to approach the task to help ensure that you give yourself the best opportunity to be interviewed, or get the job, fellowship or grant. It will be followed by the opportunity to discuss your curriculum vitae in more detail during the workshop.

IS-21
HOW TO WRITE (AND PUBLISH) A SCIENTIFIC PAPER

Félix M. Goñi
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I intend to provide a series of very practical tips for writing a scientific communication, aimed at young scientists at the beginning of their careers. Contents of the talk include selection of journal, preparation of figures and of their legends, and specific advice on each part of the paper, including references and acknowledgements. Reactions after reception of the editorial decision will also be dealt with. Related topics such as Open Access, impact factors or h-index will also be discussed.

IS-22
HOW TO WRITE A RESEARCH PROJECT PROPOSAL

Miguel A. De la Rosa
Institute for Chemical Research, cicCartuja University of Seville & CSIC Sevilla, Spain

Writing a research proposal is not a simple task if we wish – and we do usually wish! – to succeed in putting our project into practice. Three different developing stages should indeed be clearly born in mind from the very beginning. The first stage requires you (the applicant) "To have your own idea", thus demanding novelty and originality in the way of thinking. The second has the goal "To get your idea funded", thus entailing project feasibility and persuasion in the way in which the idea is presented. The third is "To run the project", thus requiring resources and local implementation. The difficulty decreases as much as the paperwork increases from the first to the second and to the third stages. So the most difficult and key point in the elaboration process is to think out of the box, to be different, to be unique, to be you. Audacity is a key element for any researcher, as was it for Christopher Columbus when uncovering the Americas to Europeans: "You can never cross the ocean unless you have the courage to lose sight of the shore".
In this talk, the importance of reading scientific literature, being aware of competitors and developing original thoughts will be discussed. As the Nobel laureate Albert Szent-Gyorgyi said: "Research is to see what everybody else has seen, and to think what nobody else has thought". And communication – from brain to brain, from yours to proposal reviewers' mind – will unavoidably emerge as the voussoir, the wedge-shaped or tapered stone used to construct the whole project. In this context, the three pillars of the Aristotle's Rhetorical Triangle will be discussed: ethos (credibility), logos (reasoning) and pathos (empathy). We will end with a basic, central principle as take-home message: "Have the brain full before writing any single word on any blank piece of paper". In the Group Discussion sessions, the students will further learn practical skills about structuring the proposal (basic scheme and complementary aspects), designing the research strategy, scheduling aims and tasks, budgeting the costs, writing the abstract, etc.

IS-23
THE ART AND SCIENCE OF EFFECTIVE ORAL PRESENTATIONS

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Successful scientific careers build upon clear, logical and effective delivery of ideas and scientific results. This interactive session will start with discussing the basic elements of any good scientific oral presentation-from journal clubs to short talks in conferences. Brief introduction and some basic guidelines for planning, preparation, practising and delivering of an effective talk will be introduced. Stages of a scientific talk, "what to do" and "what not to do" for each stage will be discussed and exemplified with good practice examples.
The group discussions will use both small and whole group discussions. The interactive format of the session will also include engaging learning activities by the use of short questions and some educational technologies or elements of team-based learning. During the session, enough time for clarification about all phases of an effective presentation including dealing with the Q&A will be allocated. Additional resources (guidelines, checklists and other related printed material) will also be provided to participants.

IS-24
e-TOOLS OF TRADE FOR SCIENTISTS

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The World becomes increasingly digitalized and the nature as well as the *modus operandi* of science evolves accordingly. Numerous electronic tools as software and websites emerge not only as facilitators of the scientific progresses but also as requirements to be an efficient scientist. These tools connects scientists as they share large files via cloud systems, communicate via social media, pre-publish their work to receive feedback, advertise their work and create their online portfolio to seek employment or collaborations, effectively creating an enormous networking environment. Beyond this digital identity, many life science researchers are now using numerous innovative electronic tools, many of which are online and free; to reach data/papers, facilitate their writing, improve their presentations, manage projects, keep laboratory records and for many other purposes.
This talk aims to introduce the most common of some of these soon to be essential tools and the group discussions aim to explore these tools as well as the possible impact they may have on science in detail.

[ORAL PRESENTATION ABSTRACTS]

OP-01

ACADEMIC PRESENTER: A NEW STORYTELLING PRESENTATION SOFTWARE FOR ACADEMIC PURPOSES

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Background: From the dawn of civilization, people have used folktales and stories to share information and knowledge. After the invention of printing in the 15th century, technology provided helpful yet complicated utilities to exchange ideas. In the present computerized world, the art of storytelling is becoming more influential through the unprecedented multimedia capabilities of computers. In this article, we introduce a state-of-the-art presentation software by which academicians can present nonlinear topics efficiently and sharpen their storytelling skills. In this study, we show how the proposed software can improve the scientific presentation style.
Material-Methods: We surveyed and collected data to measure the attractiveness of proposed utility among other alternatives. Then, we compared the results by using the Analytic Hierarchy Process (AHP) method. We also analyzed the performance of traditional and proposed methods by Methods Time Measurement (MTM-1) method.
Results and Conclusion: We presents a new presentation software that facilitates delivering non-linear topics, and it is freely available. Our new software, Academic Presenter, combines the potency of slide-based presentation and canvas-based presentation properties. As well as using the strengths of both approaches, we added other essential features to our software: Mind-map, handwriting and bookmarking. Results show that academicians from different areas prefer the proposed platform to others and they can augment the presentation skills by switching between two common presentation trends based on the level of details.
Keywords: Storytelling, Presentation Software, Academic Presentation Tool

OP-02
THE FIRST PHASE OF LIFELONG LEARNING ATTITUDE SCALE DEVELOPMENT FOR HIGHER EDUCATION STUDENTS IN HEALTH SCIENCES: DEVELOPMENT OF A SEMI-STRUCTURED INTERVIEW GUIDELINE TO CREATE APPROPRIATE ITEM POOL

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Background: This study aims to present the development of a semi-structured interview tool to collect qualitative data and create an item pool which then will be used to develop a "Lifelong Learning" attitudes scale for medicine, dentistry, pharmacy and nursing students.
Material-Methods: A qualitative approach was used in the study. Theoretical and implementation framework of the interview tool is determined by literature search and gathered data were used to create interview questions. These questions were evaluated by two faculty members; one experienced on qualitative research and scale development and one teaching at the undergraduate and graduate level in health sciences. Interview tool was revised in the light of faculty members' feedback, and final version was developed after a pilot with an undergraduate (Year 6) medical student.
Results: After literature review, six main topics have been identified for "Lifelong Learning" behaviors and characteristics: "Understands Knowledge Expands and Changes ", "Enjoys Learning", "Engaging", "Avails Self to Learning", "Asks Questions and Tracks Down Answers" and "Reflective." These topics were combined with ABC (Affect, Behavior & Cognition) model and an 18 item interview tool was developed. Faculty suggested on their feedback that: - interview questions should be rearranged from simple to complex, - leading questions should be avoided during the interview, - questions related to affect dimension should be used as probe questions and, - to make it easy to visualize and understand, main questions should be given as a printed material. Faculty also expressed that six main topics context could be used as predictors for all fields of health sciences. Pilot interviewed student commented that; giving prior information about the interview topic and, giving daily life examples instead of theoretical explanations would contribute more on the interview.
Conclusion: A semi-structured interview tool was developed based on the studies in the literature. To increase the validity of the tool, expert opinions and a pilot study was applied. It is concluded that this interview tool is a valid instrument for Lifelong Learning Attitudes in Health Sciences.
Keywords: Health Sciences, Lifelong learning, ABC Attitude Model, Qualitative Research

OP-03
ATTITUDES AND PRACTICE IN UNDERGRADUATE LABORATORY TEACHING: A DELEGATE SURVEY AT 2018 FEBS CONGRESS

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University biochemistry courses typically include practical laboratory classes which provide opportunities for students to gain invaluable experience performing experimental procedures, taking measurements and analysing data. Despite being an integral component of science degrees for many decades, there continue to be challenges in helping students make the most of these learning opportunities. Understanding how to maximise the learning potential of lab practicals is an important goal as considerable time, effort and money is needed to support laboratory facilities and the skilled teaching staff and technicians that are needed to run them.
This paper presents a survey of delegates conducted at the 2018 Federation of European Biochemical Societies (FEBS) Congress, aimed at: (i) assessing the value that is placed on undergraduate laboratory practice by staff and students, (ii) identifying priority needs for enhancement, including practical skills, student engagement, independent thinking and safety awareness, and (iii) understanding the current use of learning technology in supporting laboratory education. Based on the results of the survey, a set of key challenges to be solved by departments delivering laboratories, including those relating to budgets, time, equipment, lab space and training are presented and discussed.
Keywords: Undergraduate laboratory teaching, learning technology, practical skills.

POSTER SUNUM ÖZETLERİ
[POSTER PRESENTATION ABSTRACTS]

PP-01
AN EXAMPLE OF A SPECIAL STUDY MODULE IN DOKUZ EYLUL SCHOOL OF MEDICINE: THE PROTECTIVE EFFECTS OF LIPOIC ACID VIA PI3K/AKT SIGNALING PATHWAY AGAINST ON CISPLATIN INDUCED TESTICULAR INJURY

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Special Study Modules (SSMs) are a learning method which is given the students opportunity in order to search, study and carry out some experiments regarding their own concerns. Since 1997, SSMs are get off the ground in Dokuz Eylul University.
Here, we describe an example of a laboratory research SSM entitled "The Protective Effects of Lipoic Acid via PI3k/Akt Signalling Pathway Against on Cisplatin Induced Testicular Injury". The main purposes of this SSM to train the students about research methodology and practical laboratory work.
This SSM was planned as a mini-research project, and five second year medical students worked with together for it. They carried out western blotting and immunohistochemistry applications. They found total akt and p-akt protein expressions were decreased in the cisplatin induced damaged group compared to control group and the expressions were increased with the LA ($p<0,05$). Immunohistochemical findings was similar to western blot findings. It was showed that LA can be used as a supporting agent in the treatment of cisplatin.
In the end, they gave some feed-backs and prepared a scientific poster and scientific report. According to feed-back results, students thought that a scientific research was really hard, but exciting activity.
Keywords: special study module, medical education, wet-lab study

PP-02
INVESTIGATION OF MIDWIFERY STUDENTS' APRROACH TO LEARNING BIOCHEMISTRY

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Background: Approach to learning can be defined how the intend, behavior and study habits of student evolve according to perception of the learning task. The object of the research was to investigate the approach of midwifery students to learning of Biochemistry.
Materials and Methods: Research was a descriptive and a cross-sectional study. The population of the research consisted from students of 2017-2018 season 1st and 4th class of Manisa Celal Bayar University Health Science Faculty Midwifery Department (n:170). The data were collected using face-to-face interview technique. 86.47% (n:147) of the volunteer students were reached in a random way. Data were collected by using the "Introductory Information Form" (11 items) and the "Learning Approach Scale" (20 items) and evaluated in the SPSS package program by performing number, percentile, mean, standard deviation, independent t test, correlation analysis.
Results: The mean age of the students were 20.82±1.81. It was found that 95.2% of students stated that biochemistry lesson was necessary, 59.9 % of students think that their biochemistry knowledge was inadequate; 87.8% of them believe that the lesson would benefit their professional career. Mean score of deep approach for Learning Approach Scale was 34.13±6.07 (min:19,00-max:50,00), and mean score of superficial approach for Learning Approach Scale was 26.94±6.37 (min:15,00-max:50,00). There was a significant relationship between thinking that biochemistry lessons could facilitate their professional life with deep approach scale score ($p<0,05$).
Conclusions: Students who thought that biochemistry is necessary for their professional career had a higher motivation for learning biochemistry. It is proposed that creating effective and dynamic educational environment that supports deep learning is necessary for enhancing the output of learning of biochemistry.
Keywords: Midwifery Student, Biochemistry Lesson, Learning Approach

PP-03
ROLE AND LONG-TERM EFFECTS OF SPECIAL STUDY MODULES: RESEARCH TRAINING FOR MEDICAL STUDENTS

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Special Study Modules (SSM) are integrated into the first three years of Dokuz Eylul University School of Medicine. The objectives of SSMs are to train the students in independent learning, team working, the basic principles of scientific methodology, and writing scientific report, preparing scientific poster and oral presentation for the results of scientific research.
Starting from this point, we designed a cross-sectional study to assess the role and long-term effects of SSMs on medical students. We chose five different wet-lab SSM that were carried out in Dokuz Eylul University Research Lab between years 2009-2014. We designed a survey that included 11 questions to assess long-term effects of SSMs and sent it via e-mail to totally 20 medical students who took these SSMs. The survey was focused on experimental and transferable skills.
Among 20 medical students, 16 of them (80%) participated in the study. Through this survey, contribution levels of SSMs on scientific and educational skills of students, current status of application of the competencies that during SSM, and their opinion regarding the SSMs were investigated. The most impressive data were related to their awareness of research techniques. 92.9% of participants thought that the SSM affected their awareness of research techniques. More than half of the participants indicated that they benefitted from SSM in the fields of writing a scientific report or paper, preparing an experimental plan, and doing oral presentation. 85.8% of students indicated that the SSMs made a significant contribution on their further educational life, for instance their specialist training.
In conclusion, we found that the SSMs that are designed for the medical students in Dokuz Eylul University Research Lab influenced the students positively in terms of scientific and educational skills not only when they were applied, but also in long-term period.
Keywords: special study modules; medical education; research culture; experimental skills; transferable skills

PP-04
HACETTEPE UNIVERSITY GRADUATE SCHOOL OF HEALTH SCIENCES BIOCHEMISTRY POST-GRADUATE PROGRAMME

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Hacettepe University is one of the leading research universities in Turkey and Graduate School of Health Sciences is awarded by ORPHEUS since April, 2018. Biochemistry Post-Graduate Programme is a multidisciplinary programme conducted by the Department of Biochemistry of Medical and Pharmacy Faculties. Currently, there are 7 professors, 9 associate professors, 2 assistant professor, and 13 research assistants, 3 MSc. and 15 Ph.D. students are maintaining their education. During the first year of MSc, students take their courses and laboratory practice to evolve technical knowledge. Also, they learn how to prepare a research proposal. In the second year, they begin to carry out thesis experiments and complete MSc. programme. In the first year of Ph.D. training, the student starts to work with their supervisor, related to his/her own specific research interest. Ph.D. students are expected to undertake a formal programme of coursework to develop and enhance technical knowledge, in addition writing a research proposal for a grant and getting the approval of the ethical committee are major goals during the first 2 years. Following the defense exam, they start to work on thesis project. While doing interdisciplinary research, they are encouraged to apply for a grant to collaborate with other international

research institutions. At the end of their Ph.D. training, publishing 3 scientific papers and attending at least 1 national / 1 international meeting is mandatory. The programme is designed to produce highly skilled and motivated biochemists that are suitable for employment in the life-sciences or for further academic research.
Keywords: Post-graduate, training

PP-05
THERE IS VALUE IN TAKING THE TIME TO TEACH DENTAL HISTORY AND ETHICS IN DENTISTRY CURRICULUM

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Background: The Association for Dental Education in Europe (ADEE) defined the necessary hard (technical proficiency & scientific and clinical competence) and soft skills (personal values, ethical behaviour and social skills) that future dentists in Europe ideally should possess. However, the teaching and assessment of soft skills remains a challenge to dental schools. This paper oversees such a challenge by investigating how 'history of dentistry and ethics' course in dentistry curriculum of Cyprus Health and Social Sciences University, is taught and assessed.
Materials and Methods: The study included the students from Term 1 (n=78, teaching in Turkish language group) of Faculty of Dentistry, Cyprus Health and Social Sciences University. Dental history is taught for 1 hout (lecture) every week in the curriculum (theoretical and cases). Students' academic performance was evaluated with mid-term and final exams. Participants were assessed according to their level of success and failure. The data including the participants' success in the exams were transferred to the statistical program and evaluated with descriptive statistical methods.
Results: The students participated in the study 51.3% (n = 40) male and 48.7% (n = 38) were female. The success rate of the midterm exam was 78.34%, while the success of the final exam was 76.32%. Mid-term exam success was not statistically significantly different than final exam (p>0,215). When compared to basic science subjects the average success rate of dental history class was significantly increased (p<0.05).
Conclusion: Studies examining the role and status, the delivery and assessment of the teaching of history of dentistry and ethics in the dental undergraduate curriculum, as well as the space that it is afforded in the curriculum are important. Teaching the history of dentistry and ethics to dental students can positively influence their sense of belonging to the discipline and improve their ethical conduct as dentists. However, this course must not be isolated to classroom lectures but also include "hands on" discussion of ethical dilemmas and scenarios. The interest and success of our students in the history of dentistry and ethics course are promising clues for us to propose that there is value in taking the time to teach the course in dental curriculum.
Keywords: History of Dentistry, Ethics, Qualitative Research

PP-06
FROM TISSUES AND CELLS TO UNDERSTANDING MOLECULAR BIOLOGY

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Hacettepe University is a successful research university in Turkey. Histology and Embryology Department has different educating programmes which are training Ph.D. students related with Graduate School of Health Sciences and research assistants related with Ministry of Health. The aim is to train Ph.D. students and research assistants in basic laboratory techniques, cell biology, molecular approaches to cancer and developmental issues and in education skills. The training involves structural freedom, usefulness, equity and continuity that are essential basics for adult education.
In the first year, students take lessons that contain histology and embryology of cells, tissues and organs. In the second year, they gain more experience in laboratory techniques (cell culture, immunocytochemistry, immunohistochemistry and transmission electron microscopy). They also take experimental animals' research course. In the end of second year students should pass the doctoral proficiency exam. During the training process, students can take part in different research and follow their own thesis experiments and research. Students can participate in advanced courses, necessary for their research. Hacettepe University, Graduate School of Health Sciences is involved in ORPHEUS Ph.D. training program. In this content, from beginning of the training, Ph.D. students and their advisors decide on thesis subject and start work on it.
Histology correlates with clinical sciences, molecular sciences, genetics and also regenerative medicine. Embryology is important for understanding the developmental processes of different organisms. As a scientist, beside running research we also have the task to train new scientists. The balance between education and research is so important in this respect.
Key Words: Histology, Education, Cell Biology

PP-07
"WHY SHOULD I GET A Ph.D. DEGREE AND HOW CAN I DO IT?"

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A Doctor of Philosophy (Ph.D.) is the highest academic degree awarded by universities. A Ph.D. candidate must submit a project, thesis or dissertation often consisting of a body of original academic research, which is in principle worthy of publication in a peer-reviewed journal. Doing a Ph.D. would improve your abilities to understand and solve problems, increase your confidence, make yourself a better communicator and gain skills that may lead to a better job.
For a good Ph.D., students need to study at an academically successful university. Hacettepe University is one of the leading research universities in Turkey. Moreover, its Post-Graduate School of Health Sciences involves in privileged Orpheus Ph.D. program. At the end of this Ph.D. programme, publishing 3 scientific papers and attending at least one national/international meeting is mandatory. For this purpose, students are required to produce high-quality projects. There are various international programs to support these projects. Major international scholarships are TUBITAK, febs, Embo, Marie Curie, Fullbright and Aziz Sancar scholarships. Through these scholarships, the scientific competence of the researcher is increased by carrying out short/long-term studies abroad. Hacettepe University Biochemistry encourages Ph.D. students studying abroad during their Ph.D. studies. In this context, in 2018, 3 Ph.D. students were eligible to go to Sweden, Germany, and Israel for 1 year with Tübitak 2214-A International Research Fellowship programme.
Ph.D. is a vital step for a good career, good plan, and hard work play key roles to reach the top of academic achievement.

PP-08
EVALUATION OF THE THEORETICAL AND PRACTICAL COURSE ON DNA DAMAGE, REPAIR AND ITS MEASUREMENT BY TANDEM MASS SPECTROMETRY

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Background and Methods: A theoretical and practical course on "DNA Damage, Repair and its measurement by Tandem Mass Spectrometry" has been held by Department of Molecular Medicine, Institute of Health Sciences Dokuz Eylul University, on June 5-8, 2018. The major trainer of this course, Prof. Dr. Miral DIZDAROGLU (National Institute of Standards and Technology, Gaithersburg, MD, USA) has produced a large number of important data on DNA damage and repair, and has received over 25,000 citations with his studies on this subject. This four-

day course have provided the opportunity to understand the oxidative stress and DNA repair mechanisms; to learn about the methods of detecting this damage; and to find out the consequences of DNA damage to human diseases. Students, postgraduate students, post-doctoral young researchers and specialists studying in different departments who are interested in the topic attended from different universities all over Turkey. Besides DNA damage and repair, other topics from different approaches had been covered such as the gender of the brain in the field of neuroscience, design thinking, experimental models of oxidative stress and women in science.
Results and Conclusion: A hundred of scientists from 26 different cities had participated. Sixty of them who were master and PhD students was awarded with bursaries from TUBITAK. Upon completion of the written examination, graduate students of Institute of Health Sciences Dokuz Eylul University had enrolled this course as a credit lecture. "DNA Damage, Repair and its measurement by Tandem Mass Spectrometry" course was very efficient and productive in terms of education with a wide and in-depth perspective, as well as designing of research projects and new collaborations.
Note to the Scientific Committee: This course was supported by TUBITAK Scientific Meetings Grant Programs 2229 and 2237-A.
Keywords: Oxidative DNA Damage, DNA Repair, Tandem Mass Spectrometry, Theoretical and Practical Course, Education

PP-09
IMPROVING THE COUNSELING SYSTEM IN EGE UNIVERSITY MEDICAL FACULTY: IT'S WORTH IT!

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Academic success is not the only challenge medical students face. Family & peer relationships, accomodation & financial issues, emotional & physical problems, adjustment to the university environment account for some of the other challenges of this period. Ege University Medical Faculty has a long history of searching and implementing some initiatives for an effective counseling system to support its students for these challenges. However, there is no ideal counseling system as all have their pitfalls. This study will report our new "Student Counseling System" (SCS) which was established in 2017 to support the students, to advice and counsel them for their individual, social, cultural, health, educational and scholarship needs, and also to guide them for their academic future.
The "Student Counseling Board" (SCB) which consisted of 20 faculty from basic and clinical sciences was established by the Dean's Office in June 2017. Related literature and counseling/mentoring systems all over the world were discussed and evaluated by SCB members. SCB interviewed student representatives as well as faculty, and focus group sessions were run to determine the needs and requirements of the students. A clear need for focused and specialized subunits in the organization of SCS was detected and these were established as 'Orientation', 'Scholarships', 'Health', 'Education Abroad', 'Socio-cultural Activities', 'Career Planning' and 'Personal Development' subunits with responsible faculty assigned from the SCB for each. Besides, a 'Quality Management subunit was founded to oversee that all subunits work effectively in a coherent way. Subunits of SCS started to work actively by September 2017. Students with specific issues were directed to related subunits and data was collected about frequently seen problems/the progress and the outcome of each issue. At the same time, calls were made faculty wide to recruit volunteer researchers or clinicians to establish the volunteer counsel pool. Significant efforts were made for increasing awareness of the new system (announcements via email, GSm texts, brochures, posters, etc.). We also started collecting data about the use of the system. Continuous feedback is collected from all stakeholders.
Our biggest challenge in the new system is large number of students (around 350 in each class) and limited faculty time for counseling. However the new system is expected to bring positive impact such as more focused and faster solutions to problems, better quality of faculty-student relationship, improvement in academic performance, self-esteem, belonging and overall adaptation to the university, better participation in social activities.
In conclusion, the new system is voluntary (both from student and faculty perspective), includes specialized subunits, is supported by Students Affairs and a clear flow of working principles. In this system, the faculty is not left alone with the student in counseling but has the SCS subunits and also SCB for support. Finally the new system is open to monitoring and development which is the basis for continuous improvement.
Keywords: Medical student, medical education, mentoring, counseling, mentor, mentee, specialized mentoring

PP-010
HOW TO DEVELOP CURRICULUM IN MOLECULAR AND PERSONALIZED MEDICINE FOR MEDICAL STUDENTS?

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Background: Molecular diagnostics is becoming an important analytical modality in research and clinical laboratories. With the increasing importance of molecular genetic testing, it is necessary to specify the areas of technical and training problems in medical faculty. Studies suggest that training in molecular technologies and their applications in clinics is still not adequate at all stages of medical education. This deficiency represents a major challenge to the use of molecular testing in clinical practice and research. Also studies have addressed doctors' limited experiences concerning molecular testing, including if, why, when, and how providers order such assays. Poor understanding of medical genetics is significant among clinicians, and education and training are among a number of important factors. Other factors include perceptions concerning patient confidentiality, insurance and ethical subjects. Studies assessing clinicians 'attitudes toward adopting genome-guided drug prescribing have revealed a lack of awareness, as well as uneasiness in interpreting and applying genomic information. Many of the techniques are sophisticated tests rely and molecular biology methods are still new. The purpose of study is dealing with how to structure medical curricula into more molecular aspect, viewing molecular practices in our school and emphasizing the required practices, examining the integration of system biology approaches into molecular medicine education and examining the medical genetics education in Cerrahpasa Medical Faculty.
Conclusions: We urgently need a multidisciplinary curriculum on molecular medicine and personalized medicine, as a required component of medical students training at medical faculty. We have to encourage other practice programs in molecular medicine whole departments.
Keywords: Education in molecular medicine, personalized medicine, molecular diagnostics

PP-011
CORRELATION BETWEEN CLINICAL SELF-EFFICACY AND COURSES OF WOMAN AND HORMONE, VITAMINS IN PREGNANCY AND PREGNANT BIOCHEMISTRY

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Background: Clinical skills acquisition is an important component of midwifery education of master degree. It is fact that need a reliable and valid external resource as students of post-graduate can not accurately assess their clinical skills competences.
Materials and Methods: Research was a descriptive and cross-sectional study; data were collected from 31 midwifery students of post-graduate

who trained between June 2018 and August 2018 in a Manisa Celal Bayar University, Institute of Health Sciences, Department of Midwifery. The data of the study were collected using the "Introductory Information Form" and the " Self-efficacy for Clinical Evaluation Scale". Data were evaluated by number, percentage, mean and correlation test.
Results: The mean age of the students were 29.83 ± 6.78. It was found that 67.7% of midwifery students who took lessons were post-graduate students with thesis, 41% of them were working in secondary health services and 51.6% of them had clinical experience of five years or more. All of the students stated that the courses are necessary and that they contribute professionally. The total score of the self-efficacy perception subscale of the scale was 126.67 ± 14.72 (91-150), while the total score of the perceived confidence subscale was 137.22 ± 13.68 (98-150); it has been found that students with postgraduate abstinence are more confident in providing care for patients with chronic illnesses and pay enough attention to a given practice. There was a significant relationship between perceived confidence scores and clinical self-efficacy of students.
Conclusions: The lessons given in midwifery of post-graduate education have positively affected the clinical skills of the students. With self-efficacy theory, students can learn clinical skills more effectively so that they can incorporate these skills into clinical practice.
Keywords: Midwifery, post-graduate student, self-efficacy.

PP-012
DEVELOPING RESEARCH SKILLS IN BIOMEDICAL SCIENCES DURING UNDERGRADUATE MEDICAL EDUCATION

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Background: While a physician should be an expert in a certain medical practice, a researcher should have a core of knowledge in his/her scientific area. However, for a clinical investigator, these areas overlap. Taking advantage of being in a centralized working environment with numerous faculty members with different expertise, we held two-step workshops to gather academics to share ideas and then, initiated a novel life sciences curriculum supported by biomedical research training for undergraduate medical education at Izmir University of Economics. This multidisciplinary program consists of two consequential core curriculums, focused lectures by experts and 3-semester mentored research activities called Research Track, which offers students a multidisciplinary scientific research environment.
Material and Methods: The program is designed to meet requirements of the Bologna Process (http://www.ehea.info/) to create a 'European Higher Education Area' of complementary national systems in 48 countries to ensure comparability of higher education qualifications. This process involves the implementation of three levels of a qualification framework across courses with standardized learning outcomes, all including aspects of research skills and related qualifications. The Tuning Project (http://www.unideusto.org/tuning/), indicating "a need for students to have developed skills related to using evidence to inform practice", was also considered in the curriculum.
Conclusion: Our program is expected to create an interactive research environment for medical, bio- and biomedical engineering students. Student's performances evaluated through a peer-reviewed process employing rubrics-driven assessment of research proposals will also determine each student's qualification for the Research Track.
Keywords: scientific research, education, curriculum

PP-013
INTRODUCING THE NEXT GENERATION MEDICAL EDUCATION FROM THE STUDENT'S PERSPECTIVE

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Background: Every medical education system has similar goals in terms of teaching and improvement. In our medical school, İzmir University of Economics (IUE) Faculty of Medicine, the aim was to create a new and more effective system called "next generation medical education". This system was planned to provide us a modernized education, which can cover the students' needs, and to be able to be adjust itself according to the necessities. We prepare this poster to present how the students of the faculty perceive this system.
Materials and Methods: We searched for other educational systems in different faculties to determine what makes our education different and "the next generation medical education". We determined the central aim of the system and classified its characteristic features. Afterwards, to assess students' perspective on these characteristic features, we have carried out a survey for the students of IUE Faculty of Medicine.
Conclusion: As medical students, we believe the educational system of the faculty covers essential requirements to train professionals who can keep up-to-date with the latest developments in medicine and physicians who can see humans not only as biological systems but also as a whole with sociological and cultural aspects. We have classified the characteristic features of the educational system in five groups: E-Med (e-learning), learning to learn, advisory system, integrated lesson structure and feedback-based learning. Survey results as well as individual comments suggest that the system is effective in what it is designed for according to the students of the faculty.
Key words: medical education, integrated medical curriculum, learning to learn, student advisorship

PP-014
BIOINFORMATICS TOOLS IN THE DEVELOPMENT OF CANCER VACCINES: AN EASY, FREE AND INNOVATIVE WAY TO PROMOTE AWARENESS IN SCIENCE EDUCATION

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Bioinformatics has developed in last decade and now it is considered as an important area for life sciences in the recent years. Many computational tools and databases have so far been developed to find solutions for the problems on the fast, accurate and robust evaluation of the increasing data in life sciences. Most of the bioinformatics tools are available online and requires no payment, therefore they can be implemented in the curriculum for little to no cost, if student computers are available. Introducing bioinformatics tools to the students who are interested in life sciences can be an effective way to get them more involved with the trending topics in science and motivate the students about how they can incorporate their knowledge and technology to find solutions for current questions and problems in life sciences such as cancer. One of the important tools in the bioinformatics has been developed for *in silico* designing of peptide based cancer vaccines that can reduce the time by filtering the unnecessary wet lab applications. In this study, developed *in silico* tools on designing of cancer vaccines are present and the results are compared on a sample study. In conclusion, as the integration of technology in education is essential in 21st century the tools developed for designing cancer vaccines might be included in life science based courses.
Key words: bioinformatics, cancer vaccines, MHC I and II.
*Elif Cireli is a high school student in Robert College, İstanbul. This study was based on a 3-months summer stage.

PP-015
MOOC TRAINING?: A WAY FOR CONTINUING EDUCATION OF FAMILY MEDICINE

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Background: Massive open online courses (MOOC) is a web-based application to transform the whole world into a school environment. In this way, the quality of education could be raised without discrimination. In 2018, 66 Family Practitioners and trainees attended the "Improving Global Health: Focusing on Quality and Safety" program simultaneously. The goal was to benefit from visual and written education tools from different countries and different age groups. The aim of this study is to evaluate the benefits and/or educational needs after this MOOC.
Materials and Methods: Sixty-six family medicine practitioner and trainees were the universe of the study. Due to the international participants; the survey was conducted in English online to the group.
Results: Twenty-seven participants have answered the survey. Most of them were female (70.4%), young family physician (92.5%) and haven't attended to any MOOC course before (63%). The age of the participants were min:31years max:49 years. They do want to attend the upcoming MOOC courses. Only 2 of them didn't have any opinion about the contribution of the MOOC courses to primary care services. They feel that group activity is much more beneficial because they wouldn't be faster, more interested in or motivational. One of the half structured qualitative survey answers was "although I would enjoy a face to face work, this course is the opportunity to include countries that today are in crisis and it would be impossible to face the cost of education under another modality".
Conclusions: Well defined and structured MOOC could be more beneficial with motivational group dynamics. This option qualifies the health and health education.
Key words: quality, education, online courses, family medicine, quantitative

PP-016
ANALYSIS OF A FREE-CHOICE ELECTIVE COURSE 'WHAT WILL HAPPEN WHEN YOU GRADUATE FROM MEDICAL SCHOOL?'

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Background: Manisa Celal Bayar University Faculty of Medicine Preclinical Elective Program was introduced in 2010 for broadening the learning of its undergraduate students. The medical elective course evaluated herein is named as 'what will happen when you graduate from medical school?'. The purpose of this study is to analyze medical student's ideas with a view of better understanding the factors that influence their choices and their needs.
Materials and Methods: In this preliminary study, 12 medical students' feedback forms who took the elective course in year 2017-2018 were evaluated retrospectively. The forms evaluated had demographic questions, a question about why this course was chosen, and 5 likert type questions.
Results: Five Male and seven female students, 6 first year and 6 second year students filled in the forms. All Participants indicated that the elective to include first and second year students in the same class made a contribution in interactivity. Participants described that they are happy to take the course from the professor giving it, the course day and hour is appropriate, and the course contributed to a great extend for medical education and afterwards.
Conclusions: Our investigation revealed that medical students tend to focus on usefulness of the topic and the professor giving it. Students have an interest in the subjects such as future of Medicine, communication, sign language and robotics etc. We believe free-choice elective courses are necessary, good for communication in small groups and topics with student interest need to be included in the programs.
Keywords: Medical students, Undergraduate, Elective program, Elective choices, Student motives

PP-017
GRADUATE EDUCATION AT KOÇ UNIVERSITY GRADUATE SCHOOL OF HEALTH SCIENCES (GSHS): AN EMPHASIS ON REPRODUCTIVE MEDICINE

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Background: As graduate education is considered, each discipline may need a different type of educational approach for the accomplishment of successful outcomes. The objective of this informative revision is to reveal a variety of approaches in education and training at Koç University GSHS, with a closer look on reproductive medicine programs.
Overlook: KU-GSHS has 12 programs, including the joint ones, and there are MSc and PhD programs related to area of reproductive sciences. MSc for reproductive biology was started in 2011 and PhD for reproductive medicine was implemented in the year 2016.
Management: For MSc program, candidates from biological sciences (biology, molecular biology and genetics, bioinformatics and genetics) and for PhD training students that have a prior education in a variety of biological sciences (medicine, MBGE, histology & embryology, etc) are selected. The programs accept students only for full-time positions, and tuition fee is covered by grants or the institute. The students are responsible for active involvement in development and maintenance of research projects. The didactic curriculum covers a wide range of specific topics (basics of reproduction and IVF). Students can also take all types of courses given at the institute. Hands on trainings include wet lab techniques (cell culture, molecular techniques, advanced microscopy) and specific techniques related to IVF area (gamete and embryo manipulation, micromanipulation, 3D cultures systems). Graduates are able to find post-doc positions in reproduction area. Specific hands on trainings, enable them to be accepted for clinical embryology programmes in institutes throughout the world.
Conclusion: Graduate education occasionally may involve a major "hands on training" approach, rather than didactic approaches.

PP-018
APPLYING TEAM-BASED LEARNING FOR THE INTEGRATION OF BASIC MEDICAL DISCIPLINES ON TOPC "THE CELL:" A PILOT EVALUATION

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Background: Team-based learning (TBL) is a structured method of small group learning that can be implemented for a variety of purposes. TBL has become widely applied in medical schools and its use is typically limited to certain courses or parts of courses. In our study, we applied the TBL for a different purpose: integrating and reviewing the main concepts about "the cell", learned within a basic medical course.
This presentation describes the experience on applying TBL at the end of the semester course, "Scientific Basis of Medicine", dealing mainly with the cell and cellular activities as a pilot study. The course was held for the first year students of the School of Medicine of Izmir University of Economics, during the 2017-2018 fall semester. This medical school admitted its first students in 2017. The new undergraduate medical programme, developed collaboratively by faculty from the different fields of basic and clinical medical sciences involves interactive lecturing and other student centred activities within an e-learning ecosystem as its main learning and teaching strategy. One of the student-centred activities is the TBL.

To determine first learning experiences with team-based learning (TBL) at Izmir University of Economics, School of Medicine. Within this aim, the following objectives were formulated:

1) Apply TBL for integration and review of the concepts and principles related to the Cell
2) Assess the students' view of the TBL activity
3) Compare the effectiveness of Group readiness test versus Indivudual readiness test
4) Evaluate the whole activity and draw conclusions on how to make it more effective

Materials and Methods: This pilot study involved 35 (out of 38) students of the first-year medical school. The trainers were six faculty from the disciplines of Medical Biochemistry, Histology and Embryology, and Medical Biology, and the TBL topic mainly involved "the cell".

This activity was planned complying with the main strategies and methods of a TBL activity, with some modifications, involving whole group discussions and feedback. The applied activity comprised the following steps:

1. **Individual Readiness Test**: This test was taken by all students individually.
2. **Group Readiness Test (Working in Teams):** The class was assigned into 8 groups; the groups discussed the questions again, this time within the teams, and took the same test all together.
3. **Discussion of the answers with the trainers (Whole class):** The correct answers were discussed all together (Whole class)
4. **Application Exercise:** Vignettes (short clinical cases involving the information given during the whole course) were discussed within the 8 groups (teams).
5. **Discussion of the vignettes all together** (whole class, with the trainers)
6. **Feedback:** Oral and written feedback was received. The written feedback forms were structured with open ended questions. 22 Students out of 35 (63%) filled-in this questionnaire.

Results**:** According to the results of the questionnaire and the oral feedback, the students had a positive experience with TBL and found it valuable and worthwhile. Students enjoyed working in teams. The main issues appreciated were: Discussion within the teams, repeating what has been learned, filling out tables, reviewing, and brain storming. The suggestions of students to the question "What could be improved for the next time?": were as follows: "maybe we can choose our groups", "we need more time to answer the questions", "easier cases for the application exercise would be more helpful" , "filled-in tests could be returned to us". Students found both the "individual" and "group readiness tests" useful, though there was more interest in the "group readiness tests". The application exercise was found to be useful by 90 % of students who answered. Comparing the results of the Group Readiness tests with the results of the individual readiness tests, it was found that there was, on the average, %80 increase in favour of the Groups Readiness tests.

Conclusion. TBL is an effective teaching strategy to simulate the reality of health professions where practitioners are required to work in a team. The results of this pilot study suggest that TBL has an enhancing effect on the students' learning outcome. Further investigations are needed to confirm these results. We suggest that TBL can be used to integrate/review the concepts/ information learned and enhance the learning process. TBL could be offered more frequently both in basic and in clinical courses of a medical curriculum.

PP-019
3D MODELING FOR REALISTIC TRAINING AND LEARNING

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Background: Three-dimensional reconstruction and modeling techniques based on computer vision have shown significant progress in recent years. The rapid development has created a new learning and teaching tool for medical education. Patient-specific models, which are derived from the imaging data set and are anatomically consistent with each other, are important for the development of knowledge and skills. As 3D printing technology evolves and costs fall, there will be a choice of material and printer options for the weight of the original model and full color printing. Thus, models compatible with anatomical structure and tissue will be created.

3D modeling and importance

3D printing has emerged as an innovative way to help surgeons implement more complex procedures. Some anatomical variations and pathological changes in the clinical tables, where postoperative complications are common, make the problem more complex, challenging and patient specific. In addition, the disease process and the condition of the disease cause the disease to vary in different individuals. In this case, it is important that physicians are trained by techniques that remove the limitations of current training modalities. Recent studies have shown that 3D modeling is a powerful tool for pre-operative planning, proofing, and decision-making. 3D models have excellent potential for alternative interventions and surgical training on both normal and pathological anatomy.

Results: 3D printing is an attractive, powerful and versatile technology that has the potential to be accessible to those interested. Patient-specific models can improve performance and improve learning faster, while improving the knowledge, management and confidence of trainees, whatever their area of expertise. Physical interaction has proven to be the key to gaining the necessary motor skills for surgical intervention.

Key words: 3D printing technology, medical education, learning, surgical training

PP-020
CHALLENGES RELATED TO THE EDUCATIONAL MODELS APPLIED IN MOLECULAR MEDICINE EDUCATION IN DIFFERENT UNIVERSITIES

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Although Molecular Medicine existed since the beginning of Molecular Biology, i.e. the mid of the last century, it experienced a kind of a "revolutionary" development and elaboration in the last decade. Beside the pioneer university that teaches this discipline at undergraduate and graduate levels, the number of universities offering the course increases annually however there is a relative difference in curricula offered by each institution. One of the landmarks in this type of education in Europe is the ORPHEUS network of universities. Beginning was in the provision of biological knowledge related to medical education which ended later into an independent discipline of science.

This is a qualitative analysis work. Here, we will highlight and discuss the potential impact of the acquisition of the molecular medicine students from other institutions on the teaching experiences and quality of knowledge acquisition. Among these experiences are; the use of the 3D models to describe 2D biological and biochemical structures and pathways, learning of developmental biology, molecular diagnostics, genomics and personalized medicine curriculum development, lessons learned from the teaching of cytology in European institutions and the integration of the non-invasive molecular imaging into molecular medicine.

The lessons derived from these experiences can help us to further develop or enhance the capacities related to the teaching curricula taught currently in part to be more effective.

Keywords: molecular medicine; education; educational models

PP-021
A SPECIAL STUDY MODULE IN MEDICAL EDUCATION: THE INVESTIGAION OF POSSIBLE PROTECTIVE EFFECTS OF LIPOIC ACID ON P38 MAPK SIGNALING PATHWAY AGAINST CISPLATIN INDUCED TESTICULAR DAMAGE IN RATS

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Special Study Modules (SSM) are integrated into the first three years of Dokuz Eylul University School of Medicine and are offered in four different fields: literature search, clinical research, laboratory research, and social responsibility SSMs. We planned a SSM for four third-year students in the category of laboratory research entitled 'The investigaion of possible protective effects of lipoic acid on p38 MAPK signaling pathway against cisplatin induced testicular damage in rats'. The objectives of this SSM were to train the students in independent learning, the basic principles of scientific methodology and written and oral presentation of the results of scientific research. With this aim, the testis tissues from our previous study performed on cisplatin-induced testicular damage model in rats were used in this SSM. Total p38 MAPK and phosphorylated p38 (p-p38) signaling pathway protein expression and cellular localization were assessed by western blotting and immunohistochemistry. Compared with the control group, total p38 and p-p38 protein expression increased significantly in the cisplatin-induced damage group ($p < 0.05$). This increase was significantly decreased with LA ($p < 0.05$). The distribution detected in seminiferous tubules in immunohistochemical findings was similar to western blot findings.
After finishing the project, the students prepared a written report and presented orally their results at the final of the SSMs period. The student feedback results showed that the students faced, at the beginning, a bit of difficulty reading the scientific articles. However, they felt that they learned how to read and discuss the scientific articles, they were happy with the wet laboratory, and the research skills that they acquired. Additionally, students gained awareness related to molecular mechanisms underlying diseases with this SSM. The tutors found this educational activity fruitful and rewarding.

PP-022
ACADEMIC PERFORMANCE OF INTERNATIONAL STUDENTS IN DENTAL BIOCHEMISTRY COURSE

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Background: Teaching international students is a current and unique challenge of dental undergraduate education. This study was conducted to investigate the demographic background of a group of international students (i.e. students mainly from Middle Eastern countries), and to compare their academic success to other students.
Materials and Methods: The study included the international students from Term I (n=29) and II (n=17) of Faculty of Dentistry, Cyprus Health and Social Sciences University. Biochemistry is taught for 2 hours (lectures) every week in the curriculum (academically oriented, theoretical). Students' academic performance was evaluated with quizzes, midterm and final exams.
Results: Overall, the study included 46 students (58.7%, n = 27, male and 41.3%, n = 19, female). The demographic background of students were: 30,43% from Iran, 23,91% from Syria, 8,75% from Iraq and 6,55% from Egypt, 4,35% from Jordan. The rest, 2,17% came from other countries (Bahrain, Afghanistan, Pakistan, TC, USA, Germany, Lebanon and Palestine). According to the class variable of the sampling group, 58.1% of these students in Term 1 were successful and 56.2% of the students in Term 2 were successful.
The average succes of students for basic science subjects were also similiar to biochemistry
Conclusion: Dentistry students in general perceive dentistry related courses as more important rather than basic science courses. Thus, biochemistry is not among the most favored subjects of dentistry students of Term 1 and 2. Although the international students having their classes in English, they have extra challenges due to language or adaptation problems. This reflects to their low academic success in these courses. Therefore, active and engaging teaching methods should be preferred not only to incraese the students success but also to improve the adaptation of international students in the classroom.
Keywords: Biochemistry, Education, Descriptive Analysis