Achievements Book

Faculty of Biotechnology

2016/2017
GRADUATION PROJECTS BOOK

2016/2017

FACULTY OF ENGINEERING
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With the ever changing world we live in, over the past decade, biotechnology has advanced much to the advantage of several fields and industries by altering the specifications desired to comply with our society’s needs. Let me give you a comprehensive explanation at its simplest, biotechnology is technology based on biology; biotechnology harnesses cellular and biomolecular processes to develop technologies and products that help improve our lives and the health of our world.

Many students and parents want to know why a person should pursue biotechnology; here are simple reasons to why one should consider applying to a biotechnology program. Today, companies are focused on their position in society and worldwide competition as they become more effective in production, they keep improving their products. Improved production results from technology progression.

Biotechnology is a powerful tool of nature that is in human hand, with our depleting resources the food and agricultural industries will be dependent on the work in the biotechnology field to ensure that there will be enough food to go around and that no one will ever starve from hunger. Recent advances in biotechnology are helping us prepare for and meet society’s most pressing challenges.

Now why MSA’s program you might ask; the university and the faculty staff are dedicated to providing topnotch education that infuses strong basic knowledge sound practice in biotechnology and applied biology for well-being of society. We offer diverse syllabuses that nurture creative thinking and prepare students for productive and rewarding careers.

Our undergraduate school program provides a bachelor of science (BS), an integrated program designed for training high quality scientists and future leaders in biotechnology. Our biotechnology undergraduates receive high quality education from organized lectures and laboratory courses. Our students have the opportunity to be involved in many aspects of campus life, training sessions on a national scale and abroad, honors program for a master’s scholarship, extracurricular activities, and participate in faculty research. Our talented students will make significant contributes in diverse professional sectors in the future. Together, we look forward to discovering exciting new phenomena, unraveling challenging problem in biology and biotechnology, and finding applications in imperative biological matter. Conclusively, we always welcome and encourage your interest in joining our faculty. With sincere regards,
Research+ Publications
Research Publications

The faculty of Biotechnology is renowned for its keenness towards being innovators. The crowning Jewel of the faculty i.e. ‘Graduation Projects’, is a unique combination that demonstrates phenomenal success in producing young innovators and future scientists. The best demonstration of its success would be the exponential growth of Undergraduate Student Publications, who develop projects that are accepted in both national and international Journals.
Students and Staff Research Publications

2017

Reem A Yaseen
Aly Fahmy Mohamed,
Ashraf Bakkar


Gamal O
Hassan A
Mohamed AF
Shebl RI,
Bakkar A


Diab, A.,
Ageez, A.,
Gardoh, I.

Serratia marcescens P25, A New Strain Isolated From The Phycoplane of the Red Marine Alga Punctaria sp Produced Potent Biosurfactant Used for Enhancing the Bioremediation of Spent Motor Oil-Polluted Soil, 6(1), 1034–1047.

Mohamed Ayman
Aly Fahmy Mohamed
Ashraf Bakkar


Menatallah Yasser
Mohamed Yahia
Ashraf Bakkar


Tarek S Aboushousha
Mahetab T El-Naggar
Noha S Helal


Determination and quantification of salt stress related genes in faba bean (Vicia faba). Egyptian Journal of Genetics and Cytology. (in press).


Comparative evaluation of Escherichia coli and Bacillus cereus production potentials of acetic acid under optimized fermentation conditions, International Journal of Recent Scientific Research (in press).

Comparative and molecular identification of cucumber mosaic virus (CMV) isolated from banana and olive trees in Egypt, Egyptian Society of Virology (in press).

Experimental preparation of inactivated polio vaccine using different inactivants and related immune potential', International Journal of Advanced Research and Technology (accepted).


‘Enhancing biomass productivity and photosynthetic pigments content of an Egyptian anabaena ambigua blue green alga isolate, International Journal of Agricultural Science and Research (IJASR).

Exponential Growth of Students and Staff Publications

Exponential Growth of Student Publications

Staff Publications

National Publications
International Publications
02 Students & Staff Awards
Students & Staff Awards
Students & Staff Awards

The faculty of Biotechnology have been actively participating in a number of competitions and conferences these past couple of years. It is of great honor that they have always received high praise and even been awarded several placements.
Three of our selected students were placed to conduct their graduation projects at Palermo university, Italy, a placement which was well received by the researchers of the facility who praised the performance of Mr. Hesham Ashraf, Ms. Howida Samir & Ms. Nancy Kareem.

The surprise was in Ms. Nancy's participation in the young scientist workshop in Paris, where she was awarded 1st Place in this international competition, and given an international scholarship at the EU university of her choosing upon graduation. Ms Nancy was the only Egyptian, and selected amongst a large panel which elected 10 young researchers from all around the world.
The students at the faculty of Biotechnology actively participated in the above competition, where they exhibited their ongoing and future projects. Ms. Mena Yasser was awarded first place overall, for this national competition, a prize which involves her international travel to participate in another conference to represent Egypt globally.
Women in Science without Borders (WISWB)

The 1st International Conference on Women in Science and International Networking, which was aimed at bridging the Gender Gap in STEM in Favor of Sustainable development (Women in Science without Borders (WISWB)). WISWB was organized under the patronage of Egyptian senior and young academies (ASRT and EYAS). WISWB is supported by the Arab Science and Technology Foundation (ASTF). Student Awards included 2nd Place Ms. Hadeer Hisham & Ms. Hoda Raafat in Health, and Third Place Ms. Howida Samir & Ms. Nancy Karem
The faculty has actively participated in this competition for several years these past 2 were several awards including Best Presentation Skills by Ms. Sumaiyah Shekhdon and Mr. Amr Yasser, and best Project for Mr. Mohamed El Beltagy.
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The faculty Participated with 4 different projects in the fields of education, health, & environment. All of which were selected from 3000 different submitted projects. The Teaching Assistants placed in the field of education, and the students were placed in the Health Department. Assistant Lecturers Shaza Ahmed, Gehan Hammad, Suzan Ali, and Ingy El Hefny were awarded 2nd Place in Education.
Zewail City Conference & Exhibition on Biomedical Sciences

MSA Graduate and Teaching assistant Moustafa Ahmed recently published his research which is a joint project between MSA University & RASA LIFE SCIENCE INFORMATICS entitled ‘In-Silico Discovery of Novel Inhibitors for Peptidyl Prolyl Isomerase (PIN1): Molecular Modeling Approach for Combating Breast Cancer and Cancer Stem Cells. Moustafa A. Mohamed, Tanvee Pardeshi & Sameer chaudhary.’ The work was presented in the above stated exhibition and praised for its novelty.

Genius Olympiad, USA, 2017

Moustafa Ahmed was also involved in a project entitled ‘Overcoming Hepatitis C Virus Genotype-4’, in collaboration with Ahmed Hasan & Heba Mahmoud. This was also a collaborative project between MSA & the National Cancer Institute; the poster was presented and won the silver medal.
Dr. Reham Mohsen recently received an award for research excellence from the Syndicate of Pharmacists.

Ms. Gehan Hammad, assistant lecturer at MSA, attended her graduation ceremony at the University of Greenwich, where she received an award for best international student at MSc Level.

Ms. Rima Akid, who previously worked as an assistant lecturer at MSA, also received an award for best international student at MSc level from Manchester University.
03 Academic Events
Conferences + Exhibitions
Biotechnology 1st International Conference

MSA University has witnessed the first international conference for the biotechnology applications in which three hundred and fifty scientists and researchers have shown up from all over the world. Where they have presented the latest researches concerning the biotechnology field. Presented researches, development across bio industries covering medical, diagnostic, therapeutics, pharmaceutical, and manufacturing waste management.

The head of board of trustees, Dr. Nawal El Degwi, the head of board of trustess has declared that this conference is considered a boom for serving the society. She added that this conference is a good opportunity to gather all Egyptian scientists head by Dr. Ibrahim Badran. Prof. Khairy Abdel Hamid, the president of MSA University has stated that this conference was the outcome of cooperation between MSA University and the British universities in different educational fields. Prof. Ayman Diab the dean of faculty of Biotechnology stated that the conference has reviewed new scientific inventions that will be the focal point of the international scientific conferences in the future. Moreover, Prof. Marsh Snadan, the vice president of postgraduates of Greenwich University has been impressed by the higher marked science level of this conference.
Biotechnology Horizons Conference

This conference was aimed at dispersing some of the advances made in genomic analysis. It was prepared as a portion of the course complex genome analysis with the hopes of enlightening younger scientists of some of the theories and methods implemented by their peers and professionals in the field. It was hoped that an environment of strengthening or establishing scientific collaborations and exchanges amongst attendees was achieved.
Introduction to Biotechnology Exhibitions

This exhibition was aimed at acknowledging the fields of biotechnology, their advances, and applications even in Egypt. It was prepared as a portion of the course Introduction to Biotechnology with the hopes of enlightening younger scientists of some of the theories, applications and methods implemented by their multidisciplinary field of study. Attendees developed an understanding of the different biotechnological fields, and career paths in Egypt as well as developing skills of communication through examining the varying Topics prepared.
Complex Genome Analysis

- Attendees developed an understanding of some advances made in molecular biology and genetic analysis.
- Attendees were exposed to the significance of epigenetics and its role in scientific research.
- Attendees developed skills of communication through examining the varying projects prepared.
- Attendees appreciated the significance of Next Generation Sequencing.

Its Inauguration & Evolution!

<table>
<thead>
<tr>
<th>Activity Development Timeline</th>
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<tbody>
<tr>
<td><strong>2015.</strong> Biotechnology Horizons 2030’ Workshop</td>
</tr>
<tr>
<td><strong>2016.</strong> Biotechnology Horizons 2050’ Conference</td>
</tr>
<tr>
<td><strong>2017.</strong> Biotechnology Horizons CGAC’ Virtual Exhibition</td>
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For more information on this development visit the complex genome analysis website: http://complexgenomemsa.com
Lectures + Seminars
From time to time the faculty invites Academic speakers from other institutions to discuss the different disciplines of science. This provides the chance for students to comprehend the opportunities, responsibilities and experience of the professional career in the spoken of field. The industrial project course highlights their importance since it aims to inspire our thriving young scientists through the exposure of the expertise of the renowned speaker. The faculty intends to invite the following speakers to cover the stated topics mentioned in the following table.

<table>
<thead>
<tr>
<th>Accommodated Academic Speaker</th>
<th>Topic/ Field</th>
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<tbody>
<tr>
<td>Dr. Joaquin Lanz</td>
<td>Flavor and Natural Juice solutions</td>
</tr>
<tr>
<td>Dr. Shereen Abdel Ghaffar</td>
<td>Scientific Writing</td>
</tr>
<tr>
<td>Prof Sherif Nashaat Amin</td>
<td>Medical Test</td>
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<tr>
<td>Dr. Yasser Y. Ibrahim</td>
<td>Apis- mollifier Biotechnology</td>
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<tr>
<td>Dr. Mohamed Ismail</td>
<td>Aquamarine</td>
</tr>
<tr>
<td>Dr. Heba Salah</td>
<td>Prenatal Diagnosis</td>
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Faculty Training
Faculty Training

Trainings are a fundamental tool used in the Faculty of Biotechnology. The training programs provided allows students to develop areas that suit their particular needs. During our trainings, attendees have the opportunity to interact with others from different organizations and different industries. These diverse perspectives allow students to explore innovative approaches to solve common issues.

The variety of trainings offered permits learning, developing and interacting without the distractions of the everyday student duties. Several institutes have accommodated our students for training. We plan to add training in more field than the already existing fields offered. The following is a list of accommodating hosts that we sent our students to and planning to add for the upcoming year.

**Medical/Pharmaceutical Biotechnology**
- 57357 hospital children’s cancer
- Biotech village in Abu Dhabi
- Greenwich University
- Optoscient Company

**Agricultural/Environmental Biotechnology**
- Agricultural Genetic Engineering Research Institute
- Research Centre
- Central laboratory
- Delta Aromatics

**Forensic/ NanoBiotechnology**
- Nanobiotechnology, Beni-Suef Uni
- Egyptian Centre for Research and Security Studies
Egyptian Center for Research & Security

AGERI

Central Laboratory

Optical Microscopy
Field Trips and community work

Academic field trips are the enjoyable element of education. Field trips enhance significantly the content introduced in a course through conveying certain elements that cannot be illustrated with a broad spectrum in classrooms. There are several courses in the Faculty of Biotechnology that include going on field trips. One of the main courses that involve various field trips is the “Industrial Project” that project promotes a spectrum of benefits to the students. We intend to visit various sites as the ones mentioned in the following table:

- Glucose and Starch Factory
- AGERI
- Cell Safe Cord Blood Bank
- Egyptian Company for solid waste
- Nano-Technology Centre
- Ice man Factory
- Central palm of tissue culture
Fit-Campus

On March 25th 2017, the faculty of Biotechnology at MSA University has successfully launched a brand new initiative that goes by the name Fit-campus. Fit-campus is a full-scale movement that aims to promote the crucial necessity of leading a healthy lifestyle in terms of adopting healthy eating habits and spreading the motivational word out to exercise on a regular basis for the sole purpose of ensuring the public well-being.
The faculty of Biotechnology held their first session for their debate club. The event was quite interesting. It began with a presentation detailing all the rules and regulations that they would follow. What the club’s aims were, and how the session would progress. The student teams were composed of six speakers for each team. The first topic was extemporaneous (previously prepared) and revolved around the ‘Social Media’, and whether it was an extension of our social life, or a barrier for real communication.

The Debate Club is an activity that was established at the faculty with a purpose to train students and cultivate their argumentative skills. It is a fundamental tool for developing and maintaining democracy and open societies.
Reading is the first of all talents that we learn as children, but then to evolve in life, we have to understand what we are reading and what it is relating to and because learning should be fun, faculty of biotechnology has initiated its very unique club (The BOOK CLUB). Book Club has a different theme for each session which is suggested and organized by its members. It is aiming to elaborate to people the genres of all books and help to improve the first of all talents, for to read is first and foremost the feeding of the soul with the power of knowledge.
MSA’s Faculty of Biotechnology presents INSPIRE CLUB every tiny action, detail or idea is purely set to serve the sole purpose of empowering individuals, through inspirational service to the younger student generation by motivational speeches and raising awareness in hopes to enable and empower students to reach their full potential in their upcoming careers and life.

Various diverse speakers participated in our first event “Not all heroes wear capes” Dr. Khaled Zidan, Dr. Amgad Rady, Mohamed Hussien, Khaled El-Sahary, Mohamed El-Beltagi and was concluded with Roushdy Younis & Mahmoud Medhat.
Biotechnology Journal Club services the research needs of the learning community and granting access to many informational resources. Furthermore, the club is dedicated to engaging a community of scientists in innovative education and researches in order to
• Increase the research capabilities inside MSA.
• Help M. Sc. and ph. D. students in their points.
• Prepare team aiming to apply for research grants.
• Provide our students’ knowledge for research is a powerful tool that allows Biotechnology students to excel.
• Maximize the benefits of biotechnology research within the MSA University and scientific society in Egypt.
Science Fiction Club

The Faculty of Biotechnology believes that developing the imaginary skills are essential to prepare a generation has the ability to predict, dream, create and change the future. We provide the space for students to connect, share and exchange ideas giving them the opportunity to enjoy the semester with activities that bring out their inner talent, engage them with research and promote their mental skills. This will be accomplished through competitive sessions, watching fantasy science fiction short films and playing challengeable games. Club members will be assigned to do some tasks. We are not only watching a short film, we discuss the topic and teach them how to think out of the box and be creative.
The faculty of Biotechnology decided to exhume and portray the talents of the students of the faculty of biotechnology. A unique event was held, with an honorary panel of judges including the talented composer Amr Mostafa, and the seasoned actress Liqaa El Khamissi. The students brought out a multitude of skills including singing, playing music, painting, beatboxing, stand-up comedy and many more. The winners were given distinct prizes and praised for their performances.
The Children’s University is an International critically-acclaimed charity which encourages all children aged 5 to 14 years to try new experiences, develop new interests and acquire new skills through participation in innovative and creative Learning Activities outside of the school day. At the heart of our work is our ambition to raise aspiration, boost achievement and foster a love of learning. The main goal is to build the minds of Egyptian children by enhancing their interest in science by emphasizing the importance of scientific research and developing scientific skills.

The Children’s University’s concerned with preparing children for future challenges and promoting children’s long-term interests in learning and promoting self-esteem and confidence. Helping children to achieve future goals and ensure that all high quality educational activities are available to every child regardless of social background and STEM support (Science, Technology, Engineering and Mathematics) in Egypt.
For the second-time faculty of biotechnology launched the sports day event for all biotechnology students from different levels at MSA University. The students were divided into eight teams and competed in soccer and volleyball. The eight teams were allowed to choose their own names from which the winning team was awarded medals. The event was honored to welcome the two famous Zamalek football player Moustafa Fathy and Salah Riko who participated in the football tournament with the students.
The MSA University Science & Engineering Fair was held last March. The event entailed three main categories: Sciences, Engineering, & Environment. The event was held at the October campus, which hosted over 350 students responsible for over 60 projects from 15 different governorates. The event was held for two stages both a Junior & Senior Category. The selected winners have qualified and represent Egypt in the international Science Fairs ‘iSWEEEP’ & ‘Genius Olympiad’. Professor Ayman Diab was the Chairman of the Judging Committee for the Senior Category. The event’s focal point Dr. Gehan Safwat organized this event along with Ms. Gehan Hammad in collaboration with the ‘Dar El Tarbiah Schools’. And the End Dr. Nawal El Degwi, Prof. Khayri Abdelhamid, and Prof. Ayman Diab announced the winners and distributed the certificates for the students. We were honored to have Prof. Mahmoud Sakr, President of the Academy of Scientific Research & Technology (ASRT), and The current advisor to the Ministry of Education attend this event as well.
High performance trip was held to Suez Canal for students with exceptional academic performance and who have exited the probation level.
A high performance trip was held to wady El rayan for students with exceptional academic performance and who have exited the probation level.
Awareness Campaigns
The Faculty of Biotechnology, MSA University, hosted an awareness day for Autism entitled “Autism Enigma: Breaking the Boundaries”. The event was held on Sunday 30th of April. It included speeches from specialized doctors including Dr. Aicha Massrali, PhD student at Cambridge University, who revealed the mystery about Autism. We were honored to get a “life experience” speech from Dr. Maan Al-Gailani, Greenwich representative at MSA University. The event came in the presence and participation of Metalab along with some activities during the day.
Breast Cancer Awareness Campaign

1 in 8 women will be diagnosed with breast cancer in their lifetime. Therefore, the faculty of Biotechnology have organized a breast cancer awareness campaign for the staff and students in the honorary presence of our guest speaker, Prof. Amr Helmy; Former Minister of Health, Prof. Ahmed Selim; Head of Oncology Center and Prof. Ahmed Hassan Head of Oncology Center at Baheya Hospital. There were 11 sponsors covering health and fitness scholars covered the event.
HCV awareness campaign was done with the help of students (registering in the molecular diagnosis course). The campaign was sponsored with Le Baladna, Abbvie Company, and Faculty of Biotechnology. The aim of this campaign was to engage the young budding students to the problems of the community where each and every student was assigned to think outside of the box and to create a novel idea by which they can reach the public. The goodness of this project is that the students was applying what they have learned during the course.
Staff Achievements
TAs and Academic Staff Achievers (Last 3 years)

Master’s Degree

Shaza Habib
Gihan Hammad
Heba Hisham

Hady Shahin
Suzan Ali
Hoda Essawy
Zahra Saleh

PhD

Dr. Amgad Rady
Dr. Reham Mohsen

Academic Staff promoted to Associate Professor

Dr. Gehan Safwat
Dr. Ahmed Nada

PG-Cert in HE achievers

Dr. Ahmed Nada
Dr. Osama Saad
Dr. Amr Ageez

PG-Cert in HE current students

Dr. Ashraf Bakkar
Dr. Reham Mohsen
Dr. Radwa Mekki

Dr. Amgad Rady
Dr. Radwa Mekki
The faculty of Biotechnology has acquired an acceptance for a fund from the JESOR Program, Academy of Scientific Research & Technology, for a research proposal in 2016. The JESOR—Development Program is one of the initiatives at the Academy of Scientific Research and Technology to promote proper scientific practice. It builds on the experience of “The Transfer of Knowledge through Expatriate Nationals (TOKTEN) Programme” which was administered by the Academy of Scientific Research and Technology. JESOR allows the Egyptian industry and research institutions to cooperatively work with experts from abroad on a joint project. This project revolves around an experimental therapeutic for hepatocellular carcinoma (liver cancer), by the application of p53 gene and turmeric in curcumin coated by PEG nanoparticles. The project is one of the first of its kind and is expected to yield extraordinary results. The project acceptance entails a budget of 1 Million EGP over a period of 24 months.
Previous Projects

• 2013-2015: Ayman Diab-The Principal Investigator of the project “Establishment of Technology and Innovation Commercialization Office at MSA University and fostering research innovation in 6th October city”. The Project is funded by the Academy for Scientific Research and Technology – Ministry of Higher Education. Awarded Fund is 700,000 L.E.

• 2012-2015 Amr Ageez Team member, De novo Sequencing and Assembly of the Egyptian Buffalo Genome. Research project funded by Science & Technology Development Fund (STDF), Ministry of Higher education. Awarded Fund is 2,644,320 L.E.

• 2010-2014 Amr Ageez Personal Investigator, of Development and enhancement of butanol production in E. coli. Research project funded by Science & Technology Development Fund (STDF), Ministry of Higher Education Awarded Fund is 1,000,000 L.E.