

Rana Dajani, PhD

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Objective To strive and persevere the realization of an international community suitable in all aspects i.e. health, social environmental etc. for future generations. I am specifically interested in raising the health, educational and social status of women and children in the region. By conducting studies and participating in planning, implementing and actually carrying out policies intended to achieve such goals, I hope to help in shaping our future world.

Education 2000-2005 University of Iowa Iowa City, Iowa
PhD in Molecular Biology
Thesis entitled: "Innate immune responses in the lung and liver"
GPA (4.0)

1989-1992 University of Jordan Amman, Jordan
M.Sc. in Biology
GPA (94%) First honors award

Research in the following fields:

1. Effect of acid rain on three varieties of wheat
2. Karyotyping and pollen grain morphology of species endemic to Jordan
3. Antimicrobial activity of bacteria from the Dead Sea

1985-1989 University of Jordan Amman, Jordan
B.Sc. in Biology
GPA (91.9%) First honors award

1985 University of London London, UK
General Certificate of Education

Honors - Finalist for the "women in academia network" for the Alumni Engagement innovation fund by the State alumni

- Nominated by the Hashemite University for the "Women in Science" award offered by the Islamic Development Bank (2011)

- Complimentary membership to the Clinton Global Initiative 2010
- Awarded the 2009 Arab world social innovator award by Synergos for the project "we love reading"
- Nominated as one of Ahel Al- himmeh. An initiative by Queen Rania of Jordan to recognize individuals from the Jordan community who do volunteer work for the community and have made a difference
- Fulbright Alumni Development Awards (ADA) 2008
- Fulbright Scholar 2000-2002
- Howard Hughes Medical Institute predoctoral award - honorary mention 2001

Presentations **Dajani R**, Zhang Y, Taft P, Travis S, Welsh MJ, and Engelhardt JF. Direct Evidence for antibacterial Function of Submucosal Gland-derived Lysozyme in Proximal Airways. 17th Annual North American Cystic Fibrosis Conference. Abstract #253 and oral presentation session W15 Talk and poster at the North American Cystic fibrosis conference, 2003.

Dajani R, Zhang Y, Taft P, Travis S, Welsh MJ, and Engelhardt JF. Direct Evidence for antibacterial Function of Submucosal Gland-derived Lysozyme in Proximal Airways. College of Medicine/College of Public Health/VA Medical Center Research Week. Abstract #63, March 30, 2004.

Dajani R, Zhang Y, Taft P, Travis S, Welsh MJ, and Engelhardt JF. Direct Evidence for antibacterial Function of Submucosal Gland-derived Lysozyme in Proximal Airways. 6th Annual Student Health Interdisciplinary Poster Session.

Dajani, R, Salih Sanlioglu, Yulong Zhang, Martha M. Monick, Eric Lazartigues, Timothy Eggelston, Robin L. Davisson, Gary W. Hunninghake and John F. Engelhardt. **Pleiotropic functions of TNFalpha determine Ikkbeta –dependent hepatocellular fates in response to LPS.** 6th International Cytokine Conference 2006, Austria Poster # 10-09P

Dajani, R Community Awareness Project. A presentation Global Women leaders Conference March 10-12, 2008 Dubai, UAE

Dajani, R Problem Based Learning: a path to leadership development. Implementation problems and solutions Round table discussion. Global Women leaders Conference March 10-12, 2008 Dubai, UAE

Dajani, R member of panel "**Entrepreneurship: Walking the extra mile**" in the networking event by W@W supported by the British council March 17, 2009 Amman, Jordan

Dajani, R member of panel "**Networking**" Women's Entrepreneurship development conference April 27-29, 2009 Amman, Jordan

Dajani, R Speaker at Seminar "**How Can We Make Children of Jordan Read More?**" April 30, 2009 children's museum organized by the Embassy of Sweden and The Children's Museum-Jordan

Dajani, R and Mahasneh, R "**Service learning in Jordan**" Talk at the 14th science conference organized by the Higher Council of Science and Technology, May 4, 2009 Amman, Jordan

Dajani, R "**We love reading**" Speaker at the Peace Scholarship Program, Alumni event that was held on October 1, 2009 at the Landmark Hotel Amman, Jordan

Dajani, R "**Stem cell ethics in Jordan**" A talk at the fourth Scientific research conference on Nov 7, 2009 at the Landmark Hotel Amman, Jordan

Dajani, R "**Islam and evolution**" A talk at the fourth Scientific research conference on Nov 7, 2009 at the Landmark Hotel Amman, Jordan

Dajani, R. "**20 points to choose a school for my children**" A seminar presented at the second conference for private schools in Amman, Jordan on March 20, 2010

Dajani, R "**Is evolution a fact or a myth?**" A debate organized by the British council as part of the Darwin Now program held at the Jordan University on March 27, 2010

Dajani, R "**Drama in Biology**" A Pecha Kucha talk at the "Creative Thinking, Reimagining the University" 8th Galway symposium on Higher Education organized by the National University of Ireland, Galway on June 11, 2010

Dajani, R "**Novel reading for novel learning**" a poster at the "Creative Thinking, Reimagining the University" 8th Galway symposium on Higher Education organized by the National University of Ireland, Galway on June 11, 2010

Dajani, R "**Human embryonic stem cells**" A seminar at the IFMSA at the

Jordan University stem cell conference Oct 21, 2010

Dajani, R “The Butterfly Effect: Experience with TEMPUS” A talk at Sixth Jordanian-European Higher Education Day University of Jordan, Amman, Jordan Wednesday, 15th December 2010

Dajani, R “The Butterfly Effect” A talk at TEDxDeadsea April 30, 2011

Dajani, R “Islam and Biology: no controversy” A talk at the John Templeton Journalism Fellowships program Seminar in science and religion University of Cambridge, UK May 7, 2011

Dajani, R “Islam and stem cell ethics” a talk at the Belief in Dialogue conference at American University of Sharjah, UAE June 21-23, 2011

Dajani, R **The world debate: Islam versus Science** Panelist on The world debate BBC world service Belief in Dialogue conference at American University of Sharjah, UAE June 21-23, 2011

http://www.bbc.co.uk/iplayer/episode/p00hkvtk/The_World_Debate_Islam_v_Science/

Publications **Dajani, R.**, Zhang, Y., Taft, P.J., Travis, S.M., Starner, T.D., Olsen, A., Zabner, J., Welsh, M.J., and Engelhardt, J.F. **Lysozyme secretion by submucosal glands protects the airway from bacterial infection.** Am. J. Respir. Cell Mol. Biol. 32(6):548-52, 2005.

Dajani, R, Salih Sanlioglu, Yulong Zhang, Martha M. Monick, Eric Lazartigues, Timothy Eggelston, Robin L. Davisson, Gary W. Hunninghake and John F. Engelhardt. **Pleiotropic functions of TNFalpha determine Ikkbeta –dependent hepatocellular fates in response to LPS.** Am J Physiol Gastrointest liver Physiol. 2007 Jan; 292(1):G242-52.

Dajani, R **Undergraduate education in Jordan.** Science. 2007 Aug 31;317(5842):1170-1.

Dajani, R., Al-Haj Ali, E., Dajani, B **Cytokine profile in a group of Intrinsic asthmatics** Submitted to Cytokine Feb 2011

Mahasneh R, and **Dajani, R** **Integrating service learning in Jordanian higher education.** Accepted in Innovations in Education and Teaching International, March 2011.

Dajani R et al Diabetes mellitus in genetically isolated populations in Jordan: prevalence, awareness, glycemic control, and associated factors submitted to Diabetes Med March 2011

Dajani R and Shishani K Hypertension Risk Assessment in the Largest Ethnic Groups in Jordan. Submitted to Journal of Immigrant and Minority Health March 2011

Dajani R et al Prevalence of coagulation factor II G20210A and coagulation Factor V G1691A (Leiden) polymorphisms in the Chechans, a genetically isolated population in Jordan. Submitted to European journal of human genetics April 2011

Nancy Hakooz, Sameh Alzubiedi, Tawfiq Arafat, **Rana Dajani**, Nidaa Ababneh and Said Ismail **UDP-Glucuronosyltransferase 1A4 (UGT1A4) Polymorphisms In A Jordanian Population** submitted to Xenobiotica May 2011

Dajani, R Science in the Arab world. Nature blog June 30, 2011
http://blogs.nature.com/soapbox_science/2011/06/30/science-in-the-arab-world

Media

- Chronicles of higher education

<http://chronicle.com/article/Does-Islam-Stand-Against/127924/>

- Chris Bateman

http://onlyagame.typepad.com/only_a_game/2011/06/dajani-on-evolution-in-the-muslim-world.html

- The Washington Post

(http://www.washingtonpost.com/blogs/under-god/post/how-will-the-arab-spring-affect-religion-and-science/2011/05/10/AFwTx5gG_blog.html)

-The Guardian

(<http://www.guardian.co.uk/commentisfree/belief/2011/may/12/creationism-intelligent-design-online>)

- USA Today

(<http://content.usatoday.com/communities/Religion/post/2011/05/science-religion-islam-miracles-freedom/1>)

The Huffington Post

- http://www.huffingtonpost.com/john-farrell/expanding-horizons-for-ar_b_864029.html

TEDxDeadsea talk on youtube

<http://www.youtube.com/watch?v=arLp-9nHcQQ>

TV : a video clip of the project on all Jordan local channels

<http://www.himmeh.jo/?q=node/2478>

<http://www.himmeh.jo/?q=node/2528>

Synergos film about social innovators

<http://www.synergos.org/bios/ranadajani.htm>

Voice Interview on TV Misk

Radio: Jordan radio all local channels

Newspapers: Alrae, Aldoustor, Alarab alywm, al ghad, aldyar. Alanbat)

Jazeera

http://www.weloveread.org/index.php?option=com_content&view=category&layout=blog&id=20&Itemid=59&lang=en

BBC

PBS

Jordan TV 60 minutes July 23, 2010

Voice of America interview Sep 30, 2010

Press news wire press release Sep 23, 2010 We love reading commitment to action

Professional experience

2011- Present Center for studies, Hashemite University Zarqa, Jordan
Director

2010-Present Change (NGO) Amman, Jordan
Founder and President

Nov 2009- April 2010 Center for service learning, Hashemite University
Zarqa, Jordan
Director

2009-present We love reading initiative Amman, Jordan
Trainer

2005-Present Hashemite University Zarqa, Jordan
Assistant Professor

2000-2005 University of Iowa Iowa City, Iowa
Research Assistant

1995-2000 Amman Academy Amman, Jordan
Teacher

1992-1994 Philadelphia university Amman, Jordan
Lecturer

Memberships - Mentor net

- Arab International women forum
- Clinton Global Initiative
- Fulbright alumni
- Human genome organization (HUGO)
- American association cancer research (AACR)
- American association for the advancement of Science (AAAS)
- Jordan Biology Society
- National Geographic Society

Courses

April 2011 FRONTIERS IN HUMAN PLURIPOTENT STEM CELLS workshop

International Cell Research Organization, University of Pittsburgh, Farah Hospital, Hashemite University
Amman Jordan

2010 Strategic planning, action planning, strategic communication planning and grant writing and preparation

Booz Allen Hamilton, USA

June 2010 Service learning workshop

National University of Ireland

May 2010 FP7 workshop "Writing proposals for FP7"

University of Jordan

April 28, 2009 Women in the network workshop

Dinah Bennet, Durham University
Jordan University Jordan

June 2008 Frontiers in Human embryonic stem cells

MBL, Woods Hole, MA USA
An NIH funded intensive workshop.

2000 Jordan United States Business Partnership Jordan
Human Resources Development and Business Planning

1998 University of Cambridge England
International general certificate of secondary education, training in school-based assessment in biology

1996 Princess Tharwat college Jordan
Learning disabilities

Committees

Hashemite University

- Oct 2010- current Information technology higher committee
- Oct 2006 –current library committee for the faculty of Science.
Duties include: follow up of Journal subscription and book acquisition
- Oct 2005- current Academic counselor for Biology students year 2005- 2006
- Oct 2005- current cultural committee for the Department of Biology and Biotechnology.
Organized the scientific day (April 28, 2009) for the department. My students wrote and produced a play titled "DNA replication"
Participated in organizing a scientific day for the department (Dec 7, 2006). My students wrote and produced a play titled “Cell works”
Organizer of department seminar series
Organized a reading club for members of the university to encourage reading for pleasure and intellectual enrichment.
Organizer of scientific day at the university (spring 2009)
- Jan 2008- current Member of the accreditation committee
- May 2009 Established the first reading club at the university.

Editor **June 2011 – current editor “Muslim-Science.com”** An online journal and portal on Science, Technology, Innovation, and Entrepreneurship in the Islamic World and by Muslims living in the West.

July 2010-current guest editor for the journal “The Anatomical Record”

Consultant **July 2010- current** Coordinator for Frontiers of pluripotent Stem cell course in Jordan in collaboration with International Cell Research Organization, University of Pittsburgh, Farah Hospital, Hashemite University

Jan 2011 –current Mentor at mentor net

Sep 2010- current member of IT higher committee

2008- current Fulbright External reviewer

Feb 2008 – current International Office at the Hashemite university

June 2008 Member of task force for the Jordan US joint committee on health. Higher council of Science and technology

June 2008 Member of committee for stem cell research, Higher council of Science and technology

June 2009 research member of the Jordan national center for women

July 2009 Member of the National Team for setting priorities for health research issues for Jordan

July 2009 Member of Queen Rania Teacher academy for the collaborative writing challenges in Jordan

Dec 2009 Consultant for the Triangle research group

Jan 2010 member of advisory board of Raneen (audio books for children)

Feb 2010 member of team of [Arabic Book Program Titles Selection Committee](#), USA embassy, Jordan

Feb 2010 member of scientific committee for Evolution Debate. British council, Jordan

Conference coordinator

August 2008 Head of the committee for the fourth science research cancer conference

July 2010 We love reading conference organizer

2011 TEDx Hashemite University licensee
Theme "empower women empower the world"

Trainer

Train the trainer

Higher council of science and technology, Office of capacity building of Jordanian researchers

Train on networking, international partnerships and communication skills.
June 4, 2011

Trainer

We love reading project

Train on women empowerment, volunteerism, reading, fundraising, sustainability, evaluation and monitoring, networking, social innovation, entrepreneurship and importance of reading and read aloud.

Training sessions 14 in various areas in Jordan and with various partner organizations including:

1. Ruwwad, Zarqa Anne Lindh foundation, March 2011
2. Mother child education foundation, Turkey April 2010
3. Higher council for children with disabilities, Amman Nov 2009
4. Zaha cultural center, Amman (2 workshops) Dec 2010 and March 2011

5. Children museum, Amman (2 workshops) Jan 2009 and April 2009
6. Albalad theater, Amman (2 workshops) March 2010 and May 2010
7. Amman municipality library (70 librarians) Nov 2009
8. Hashemite Center in Madaba May 2010
9. Northern Shoona center ministry of social development May 2010
10. Zarqa refugee camp Nov 2009
11. Save the children, Amman June 2010

Reviewer **May 2011 Nature education reviewer for an online course for introductory biology**

Zygon

Jordan Journal of biological Sciences

E-learning **Development of the following e-learning courses**

- 1. Cell biology**
- 2. Bioinformatics**

Research statement

My research interest is in cell signaling.

Signal transduction refers to the biochemical processes by which cells respond to signal in their internal or external environment. Many of the biochemical pathways that conduct such information are found in all cells across widely divergent species. Thus, understanding of these regulatory systems is essential to the work of most biologists in the basic and applied life sciences. Because signal transduction mechanisms are the natural control circuits that regulate biological systems, they are targets for the development of therapeutic agents to combat disease.

I also adopt an interdisciplinary approach towards science which through knowledge creation and information sharing provides a novel perspective towards science. This is especially important in signaling research where the complexity of the problems demands an interdisciplinary approach. Such an approach provides a wide range of connections with researches in both fields which helps them apply knowledge they learn across disciplines to their respective fields.

Current Research

Funded research:

Common molecular markers between obesity and intrinsic asthma in humans

Funded by the Hashemite University

Monetary amount: ~7,000 JD

Summary:

The *long term goal* of my research is to determine the biological association between obesity and intrinsic asthma in humans.

Our first objective is to identify common molecular markers between obesity and intrinsic asthma in humans. The central *hypothesis* for the proposed research is that obese humans are more susceptible to developing intrinsic asthma because of low grade systemic inflammation.

The incidence of complex diseases in genetically isolated populations in Jordan

Funded by the Hashemite University

Monetary amount: ~ 5000 JD

Summary

The *long term goal* of this project is to identify common genetic factors that influence health and disease. Information derived from such studies will be essential for developing new approaches to reduce disease burden and promote health.

The *objective* of this project is to determine the incidence of complex diseases that include various cancer types, type II diabetes, cardiovascular diseases in genetically isolated populations in Jordan. The central *hypothesis* for the proposed research is that the relative genetic homogeneity of certain genetically isolated populations in Jordan including Circassians, Chechens and Druz, results in incidences of complex diseases that differ from the general Jordanian population that consists mostly of Arabs. The *rationale* for the proposed research is that, such inbred and selected populations tend to be ideal for investigating the genetic factors involved in conditions such as various cancer types, type II diabetes and cardiovascular diseases.

Anthropological, epidemiological and genetic studies on genetically isolated populations in Jordan

Funded by Higher council of science and technology, Jordan

Monetary amount: 60,000 JD

Summary

The purpose of this project is to determine the ethnicity and medical state of the individuals of genetically isolated populations in Jordan which include Circassians and Chechens.

Then to use this information in genome wide association studies to identify novel genetic factors involved in conditions such as type II diabetes and cardiovascular diseases.

Information derived from such studies will be essential for developing new approaches to reduce disease burden and promote health.

Genome wide association studies on a genetically isolated population (Chechans) in Jordan in order to identify novel risk factors for Type II diabetes.

Funded by King Hussein institute for biotechnology and cancer, Jordan

Monetary amount: 75,000 JD

Summary

Type II Diabetes is one of the most common non-communicable diseases globally. The genetic basis of Type II diabetes remains largely unknown. The objective of this project is to use genome wide association studies (GWAS) to identify new genes related to type II diabetes in a genetically isolated population in Jordan. GWAS permit a comprehensive

scan of the genome in an unbiased fashion and thus have the potential to identify totally novel susceptibility factors. The central hypothesis for the proposed research is that the genetic causes of complex diseases are easier to identify in relatively genetically homogenous population such as the genetically isolated population in Jordan (Chechans). Identification of novel genetic risk factors will offer the potential to explore new biology and develop novel treatments which will reduce disease burden and promote health.

Polymorphisms of Clotting factors in genetically isolated populations in Jordan

Funded by the Hashemite University, Jordan

Monetary amount: 3285 JD

The purpose of this project is to determine the polymorphisms of clotting factors: Factor V, Factor II and MTHFR in genetically isolated populations in Jordan which include Circassians and Chechens

Identification of virulence factors in *Cryptosporidium*.

Funded by SIDA, Sweden

Monetary amount: 75,000 SEK

Joint member

Summary: All previous studies of *Cryptosporidium* have been carried out in cell culture using different cell lines. However, this is the first time that a cell-free culture will be used. Proteins expressed during *Cryptosporidium* development in cell-free and cell-culture will be compared in order to identify and characterize unique novel proteins which might be released during *Cryptosporidium* life cycle development and might play a role in *Cryptosporidium* pathogenesis in human and animal hosts. Such detailed knowledge can aid in determining the biological functions of the novel proteins and in the development of inhibitory compounds (vaccine, monoclonal antibody) that can be used for therapeutic intervention

Biodiesel fuel Production in a Packed Bioreactor using Immobilized Lipase Enzyme Produced by *Bacillus* sp. Isolated from Raw Petrol

Funded by Ministry of higher education, Jordan

Monetary amount: 71,000 JD

Joint member

Summary

Renewable biofuels are needed to displace petroleum derived transport fuels, which contribute to global warming and are of limited availability. Biodiesel offers an alternative fuel that is technically and environmentally acceptable and economically competitive. Different processes are currently available to achieve transesterification of oils for the production of biodiesel, which include chemical or enzyme catalysis or supercritical alcohol treatment. Although biodiesel can be successfully produced by chemical approach, there are several associated problems, such as glycerol recovery and removal of inorganic salts. Use of biocatalysts (lipases) in transesterification of oils for biodiesel production addresses these problems and offers an environmentally more attractive option to the conventional processes. However, high cost of the enzymes often presents the biggest

obstacle. The key step in enzymatic processes lies in the successful immobilization of the enzyme, which will allow for its easy recovery and reuse.

Attempts to isolate microorganisms that produce lipase gain continuous attention since this enzyme is used in numerous biotechnological processes such as detergents, textile, and dairy industries; oil processing; production of surfactants; synthesis of chiral pharmaceuticals. Since each industrial application may require specific properties of the enzyme, there is an interest in finding new lipases that could create novel applications. The literature reports that several *Bacillus* species isolated from several diverse environments produce lipase enzyme. In these studies, mostly the medium compositions that stimulate the production of lipase have been investigated. However, The purpose of the present study is to isolate a novel bacterial strain that is capable of producing an efficient lipase enzyme that could be used in the catalysis of oils to produce Biodiesel and to characterize the lipase protein in terms of protein sequence, gene, and the active site (domain).

Stem cell ethics in Jordan

Summary

The discovery that embryonic stem (ES) cells can be isolated from human blastocysts has opened novel avenues for medical treatment of otherwise incurable diseases and the ability to reconstitute human organ systems in animals in an attempt to create new animal models for human disease. Yet the generation of human ES cells requires the destruction of early human embryos. This confronts us with the moral problem of whether it is justifiable to sacrifice human life in order to treat other human life.

This paper examines from an Islamic perspective the legal status and ethical implication of ES cell research.

Evolution and Religion

There is no contradiction between Islam and Evolution. On the contrary there is evidence for evolution in Islam and in the history of Islamic civilization.

Thesis advisor for the following desertions:

1. Biomolecular marker profile of intrinsic asthma in humans
2. Epidemiological and genetic studies in genetically isolated populations (Chechans)
3. The prevalence of factor V (G1691A), prothrombin (G20210A) and methylenetetrahydrofolate reductase(MTHFR, C677T) mutations in the Circassian population in Jordan

Thesis committee member for the following dissertation:

Influence of genetic variations in enzyme CYP2C19 and the effect of the pharmacokinetic profile of Lansoprazole. Screening the allele frequencies of CYP2C19*1, CYP2C19*2 and CYP2C19*3 in Jordanian population. By Imad Abdule-Sami Y Zalloum Degree in clinical Pharmacy/ Faculty of graduate studies/ Jordan University, July 2008

My Teaching Philosophy

My teaching philosophy stems from my experience as a student, which I still am. The teaching process to me is an equal contribution by both teacher and student “both are learning from each other” as Paulo Freire says in his book *Pedagogy of the oppressed*. The teacher only serves to guide the student so that she/he can make their own observations, draw their own conclusions and analysis. I also see a teacher as a mentor. In my opinion, both roles are integrated and indistinguishable. A mentor who is genuinely concerned listens to her students, because listening helps the person talking to understand herself and put things in perspective and one can only talk to someone he or she trusts and who will listen without judgment. An important characteristic of a mentor is honesty in advising the student of the possibilities and facts. A teacher is the person who will tell you the truth no matter how difficult it is to help you overcome and face reality and go on. This would help the student proceed in life knowing what to expect. Also a mentor believes in her/his student, never belittles her/him or her/his ideas and always encourages anything the student may come up with. That is the fertile ground for serendipity and creativity. The fact that the student knows that someone believes in her will help her develop to her full potential and more. My motto is encouragement and to never think that a student is a lost case. Just like Esme codell, a first grade teacher said: “It is not that you don’t like to read, you have just not found the book you like”. Similarly, never say a student is helpless, you have just not found the way to him/her. Using a variety of techniques including auditory and visual etc. to stimulate all methods of input. I believe no student is hopeless, It is the teacher who fails. The responsibility on the teacher’s shoulders is great, for she is helping prepare the next generation. The most important product of humanity, our children, are being formed and molded by our teachers. The teachers therefore must be the best.

Drama in Biology

A picture is worth a thousand words. An animation is worth a thousand pictures. Acting is worth a thousand animations. Allowing the students to act out a biological mechanism increases their comprehension of the mechanism. Involving them personally in a three dimensional world allows them to think of the mechanism from the perspective of the molecule they are playing in the context of neighbouring molecules in the milieu of the cell. They can now understand the limitations, the challenges, the potentials and the beauty of the biological mechanisms. This allows the students to unleash their imagination and creativity which will allow them to explore and come up with novel mechanisms or solutions to old problems.

In addition to learning life lessons that apply to our community from cellular mechanisms that are all the more clear when acted out.

Drama examples include:

A. Short acts: Student groups acting in front of the class

1. Cilia movement
2. DNA replication
3. DNA transcription

B. Plays: Full plays with script and actors

1. Receptor mediated endocytosis
2. DNA replication

Novel reading as a novel method of teaching

In many cases, students may not be interested in the courses they take because they are obligatory and/or may not be related to their major.

In order to pique their interest, one may assign a novel that revolves around concepts taught in the course. The idea is that when the student reads the novel he or she becomes interested in the material of the course and hence wants to learn more to understand the novel.

The reading levels of students is low. Assigning a novel to be read as part of the course requirements will help increase reading levels of students.

The assignment would include in addition to reading; questions pertaining to content, opinion of reader in terms of characters, future of the theme, etc. This will allow the students to comprehend how the information they take in the course has a real world application or effect. Hence, tying their education to the real world which will help them develop better skills for tackling the real world and becoming therefore better citizens.

Example

Course Molecular Biology

Novel: Darwin's radio by Greg Bear

Novel material covers the basic concepts of molecular biology and techniques. It also covers the ethics of the application of molecular biology to real life situations.

Usage of debate in teaching

We perform debates between students as a method of teaching and development of personality

Community awareness project

The aim of this project is the development of individuals to become responsible active participants in society. The project aims to develop confidence and leadership qualities in the students. These aspects are very important components of the student's university education. When students are exposed to the application of their knowledge they feel that they can make a difference and change the wrong things they see around them. This nurtures their feeling of responsibility towards the community and that they should do something. We have achieved these goals by teaching students to identify problems in their environment, analyse the problem, create a plan to attempt to solve the problem and carry out the proposed plan. Students are required to keep a journal of the application of the plan which should include examples, narrations, good and bad experiences. At the end of the project students shared their experiences. This gave the students the chance to evaluate and criticize their plans after carrying them out. The study group was a class of 60 students ranging between second and third year undergraduate level. Duration of the project was 2 months. The problems identified were diverse and reflected the students' level of awareness of the problems in the community. Problems identified included: smoking, littering, drugs and respect of others, etc.. Plans were diverse some were in the form of distributing advice

while others took a more active role by actually being the change itself. Some applied their plan to their immediate families while others applied their plan to a wider circle of the community. In conclusion, the project was a success in achieving its goals. Students displayed an enthusiasm and awareness of their capabilities in eliciting change in their community; true leadership qualities.

Courses taught

Biology 101 and 102 (freshman)

I implement problem based learning (PBL) and drama in my teaching

Cell Biology (sophomore)

I implement PBL and drama in my teaching. Students are required to work in groups to review and make a presentation about a disease at the molecular level and its incidence in Jordan.

I am working on creating a cell biology e-course.

Special Topics: Criticizing scientific articles (senior)

Students learn to be scientists by analyzing and critiquing state of the art research articles from *Nature* and *Science* journals.

Special Topics : Bioinformatics and signal transduction (Graduate level)

Seminar (senior)

Molecular Biology (sophomore)

Students participate in a debate concerning evolution. The first case of a formal debate in Jordan

Evolution (senior)

Molecular Biology (Graduate level)

Cell Biology (Graduate level)

Bioinformatics (undergraduate level)

Education

Problem based learning (PBL):

Initiated teaching using PBL at the Hashemite University personally and at the level of the institution by preparing seminars and workshops for faculty in coordination with the center for academic excellence.

Service Learning:

Pursuing avenues for setting up a service learning centre within the center for academic excellence at the Hashemite University in collaboration with service learning centers in Europe.

Service-learning combines service objectives with learning objectives with the intent that the activity change both the recipient and the provider of the service. This is accomplished by combining service tasks with structured opportunities that link the task to self-reflection, self-discovery, and the acquisition and comprehension of values, skills, and knowledge content

Received a grant of 88000 EU from TEMPUS IV for a service learning center in Jordan 2009 titled:
Developing Service-Learning and Civic Engagement Partnerships across the Curriculum

Entrepreneurship center

Advocate for establishing an entrepreneurship center at the Hashemite University

Community service

Founder and Director of "Change" Organization مؤسسة تغيير

We love reading Initiative

www.weloveread.org

Statement of Purpose

Reading is essential to the development of a child's personality, imagination, brain and communication skills. Children must learn to love and enjoy reading to reap its benefits. In order to plant the love of reading in children one must start at an early age. Children will realize that reading is exciting and inspiring and that it opens new horizons and helps them respect and understand others. There is no child who does not like to read. He or she has just not met the right book, similar to finding the right friend.

Children of the Arab world and Jordan in particular are not readers for many reasons. My goal is to create a generation of children that love, enjoy and respect books. Through a series of activities aimed at different sectors of the community I aim to achieve this goal.

"We Love Reading" exists to positively impact children throughout Jordan by creating a library in local neighborhoods, thereby actively encouraging each community to share in the experience of storytelling, and creating a life-long enthusiasm for each child to read and acquire knowledge.

Vision

A society that loves to read at any time and place

Motto

A library in every neighborhood

Mission

Establishing a library in every neighborhood in the Arab world by training individuals from the neighborhood to read out loud to the children 4-10 years old, reading material that is appropriate for their age. And organizing these storytellers in a network for sustainability.

Goals and Objectives:

1. Spread awareness among parents about the importance and benefits of reading .
2. Foster the love of reading among children at a young age.
3. Shift the way society in Jordan perceives reading and their investment in it.
4. Train more groups of storytellers in different neighborhoods in different provinces in Jordan.
5. Establish more “We Love Reading” libraries and storytelling sessions in neighborhoods across Jordan.
6. Creating a solid and growing storytellers network.
7. Spreading the idea and message of “We Love Reading” to reach over 10,000 individuals through TV, radio, newspaper and other media venues.
8. Establish more collaborations and connections with organizations abroad.
9. Build a growing collection and choices of children stories in the Arabic language.
10. Help shape the future and minds of young children and expand their creativity and horizon.

Awards:

1. Awarded the 2009 Arab world Social innovator from Synergos for the project "we love reading" 34,000 USD
“ .2Ahel el Hemmeh” initiative, been nominated for the award and got voted in the final 30 runner-ups.
3. Complimentary membership for the Clinton Global Initiative 2010

Achievements:

1. trained 420 women how to read aloud
2. established 100 libraries in different areas of Jordan
3. The model has spread to Lebanon, Egypt, Tunis, Saudi Arabia, UAE, Turkey, Malaysia
4. Local partners: ARAMEX (Ruwad), Zaha Cultural center, Business development center, Injaz Jordan, US embassy Arab book program, women microfund
5. International partners: Mercy Corps, International reading association

We love writing Initiative

www.welovewriting.org

Work in progress

Women network

Objective

To provide a network of communication between academic and intellectual women in Jordan. This network will facilitate collaboration, team work and social support. This network will help make women better equipped and prepared to be social developers and mentors for the young youth

Jordan women scientists network

Vision

To support, encourage, sustain, advise and mentor all women in academia so that they may attain the maximum of their potential with the least hardship and sacrifice.

Mission

To provide a network support for women in academia to fulfill the following objectives:

1. dissemination of information and knowledge
2. facilitate collaboration and team work
3. social support
4. research development
5. mentoring
6. communication
7. scientific support in terms of publications

member and mentor at mentornet

References

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Social innovation

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