MITx SPOCs for Gaza
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Ayat Abodayeh and Haynes Miller

In the course of its current campaign against Palestine, Israel has systematically demolished the once thriving educational infrastructure in the Gaza Strip. More than 10,000 university students from Gaza have sought refuge in Egypt, with many more in other countries such as Cyprus and Turkey, while some 70,000 remain trapped in Gaza.

In an attempt to provide an educational experience for some of these students, a group of us here at MIT is currently running four MITx courses for students in the Gaza Strip or displaced to Cairo, augmented by extensive TA support in Arabic. They are based on MIT courses and led by MIT faculty:
- Introduction to Computer Science, led by Professors John Guttag and Eric Grimson and Senior Lecturer Ana Bell
- Data Analysis for Social Scientists, led by Professor Esther Duflo (2019 Nobel Prize in Economics) and Senior Lecturer Sara Ellison
- Calculus 1A (differentiation) and Calculus 1B (integration), led by Professors David Jerison and Gigliola Staffilani

This initiative began in May 2024, with a meeting with Chancellor for Academic Advancement Eric Grimson, Dean for Digital Learning Cynthia Breazeal, and Senior Associate Dean for Open Learning Chris Capozzola to explore what MIT Open Learning might be able to do to provide these students with educational opportunities of some sort. They immediately suggested running one or several "SPOC"s, Small Private Online Courses, from the MITx Open or the edX catalogue. This seemed like a wonderful idea, and, with the consistent support of MITx/MicroMasters Program Senior Director Dana Doyle and MITx Senior Product Manager Joe Martis leading the MITx effort, this project got under way.

There have been many surprises as this program evolved. First of all, a call for expression of interest quickly drew about 200 responses, more than half from the Gaza Strip itself! The courage and dedication of these students is simply astounding – mostly displaced from their homes, surrounded by war and destruction, in continual danger, and under great pressure to help their family survive – but still able to find internet service and still interested in continuing their education!

A second major surprise was the outpouring of dedication, energy, and creativity by a large number of current and recent MIT students (many under sanction by the Department of Student Life (DSL)). It has transformed these SPOCs from a chilly, impersonal MOOC experience to a caring and supportive environment for our students, and provided important enhancements of the MITx material that will be of use in other situations of constrained internet access.

A third surprise was the embrace of this project by the leadership of the American University in Cairo. Following outreach by MIT Professor Ahmed Ghoniem, President Ahmad Dallal opened

the doors of AUC to our students. Directed by its Senior Director of Academic Affairs Projects Rachel Awad, AUC has made available classroom space equipped with internet, projectors, and computers, providing on-campus educational experience for some 30 of our students displaced from Gaza to Egypt. We work closely with a team of TAs at the AUC, who lead in-person teaching sessions twice a week at the New Cairo campus. AUC has granted these students university IDs, allowing them to access essential campus resources like the library and classrooms with computer devices, and provides dedicated bus service from Tahrir Square. Moreover, AUC is offering mental health support opportunities and scholarships for interested students, helping them continue their education in a supportive environment. This has transformed the learning experience of these students.

Finally, we have found brave and generous partners working on the ground in Gaza to provide space and internet connectivity for our students. The organization HopeHub provides solar-powered internet workspaces dedicated to freelancers and students and has arranged study spaces for our students. We are also collaborating with the Future Development Commission, which has administered funding to cover costs for cafes and workspaces. FDC also organizes recreational and psychosocial support activities, supervised by Dr. Stephen Friend, starting with a remarkable event on November 2, 2024. At this event, one student in Gaza said:

> "Thank you, MIT. This program makes me remember who I was before the war."

We now have 36 students signing in from different parts of the Gaza Strip, and 49 students in Egypt. Our MIT student staffing is impressive: For Calculus 1a and Calculus 1b, we have 4 MIT students in each; for Data Analysis, we have 9 TAs, with two students volunteering from Harvard and one student from the Broad Institute; and for Introduction to Computer Science, we have 6 MIT students as TAs. Each course TA team is supervised by a Head TA that oversees the course progress and assigns the work accordingly. Head TAs have received training from Open Learning in optimal use of the platform.

Our TA teams are committed not only to making the MITx content accessible to students but also to providing twice-weekly teaching sessions, in Arabic, over Zoom for students in Gaza. During these sessions, TAs review the material scheduled for the week, using custom slides with practice problems to further clarify the content, including Arabic explanations as needed. Our TAs personally reach out to students who may have missed sessions due to poor internet connectivity, ensuring no one falls behind. They maintain active group chats where students can engage in Q&A and receive additional support.

We have confronted and overcome several technological challenges. The MITx course webpages are quite heavy, not packaged appropriately for use in narrow bandwidth situations. Our team breaks up course content and uploads it to Google Drive, making it easy for students to download. For the Introduction to Computer Science course, a significant issue is that the MITx platform does not currently support the edX automated code grader. Consequently, having students submit answers directly through the exercises is not an option. To address this, our team has created comprehensive documents detailing the assessments and exercises so that

students can work on them independently of the MITx website. We have also developed our own autograder system, managed by a dedicated grader team, to assess student submissions efficiently. Much of this work was carried out by a team of 40 – yes, 40! – MIT students at a "hackathon" on October 27. We hope this work will find application in other resource-constrained environments.

Our team has funded devices for two students in need and are currently raising money to help provide food for a student and her family of five. We continuously reach out to each student to understand their needs and allocate resources accordingly.

SPOCs4Gaza joins several other MIT initiatives in support of education in Palestine. The PalUROP program, supporting collaborative research projects for students from Palestinian universities, is now in its fourth year. A dozen students from three West Bank universities participated in IDSS's Data Science and Machine Learning Summer Opportunities Program. Emerging Talent, an extensive educational and career development program directed by Prof. Admir Masic, has dedicated half of the 2025 cohort – 50 spots – to displaced students from Gaza. Brand new is the Global MIT At-Risk Fellows Program for Palestine https://global.mit.edu/gmaf-palestine. Directed by Prof Kamal Yousef-Toumi, this MIT-funded pilot program will support up to 10 Palestinian academics for a semester at MIT over the next two years.

The Authors:

Ayat Abodayeh, Personal Robotics Group at the Media Lab
Haynes Miller, Professor of Mathematics, emeritus

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