

Students' online and offline social networks can predict course grades, study says

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Ben-Gurion University of the Negev's (BGU) Social Networks Security Research Group in its Department of Information Systems Engineering has developed a novel method to predict how well or badly a student will perform in an academic course.

The information can be used to determine which students need the most help, as well as which ones excel and might be guided to further study or careers in that subject area. The paper, "Predicting Student Exam Scores by Analyzing Social Network Data," was presented earlier this month at the Advanced Media Technology Conference in Macau, Hong Kong.

According to co-author and Ph.D. student Michael Fire, "While most papers about social network analysis deal solely with information gathered online, this study draws some of the information used for the generation of the network from the real world—social interactions which were conducted off the grid."

The researchers analyzed data from a BGU course that included assignments submitted online and Web site logs (containing 10,759 entries) to construct social networks of explicit and implicit cooperation among the students. The implicit connections are used to model all the social interactions that happened "offline" among the students: e-mails with questions, conversations in the lab while preparing the assignments and even course forums.

"These connections were very important, as we sought to model the

social interactions within the student body," Fire explains.

In addition to analyzing the online submissions of the students who had to work in pairs or in groups, they also tracked login time and computer usage. For instance, if two students submitted their assignments from the same computer, it was a likely indication that the two had worked together to complete the assignment. If two students submitted assignments from different computers, but one right after the other on more than one occasion, the authors gave a value to that data, as well.

"One explanation for what we discovered is that your friends influence your grade in the course, so, if you pick your friends well, then you will get a higher grade," Fire says. "Alternatively, social networks in courses offer conditions whereby good students will pair with other good students and similarly weaker ones will pair with other weaker [students](#)." he continued.

Provided by American Associates, Ben-Gurion University of the Negev

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