

SWOT Analysis: How We Did It in the Mathematics Department

By Doug Ensley

Recently all departments in the College of Arts and Sciences have undergone SWOT analyses of their programs. The Mathematics Department approached this task in several stages in order to get maximal participation of faculty members. This short article describes our process.

Our first charge: *Provide a summary of the internal strengths and weaknesses (SW) of the department with the external opportunities and threats (OT).*

In the first department meeting of the semester, Department Chair Winston Crawley explained to the faculty members the basic elements of SWOT and the charge from the dean’s office that explained the role of the department SWOT analyses in the overall planning process for the college. Having explained what was to be done and why it was to be done, Dr. Crawley posted an empty “template” on the network drive to which all faculty members have access. The template had simple captions for each of the four SWOT areas, and faculty members filled in ideas between department meetings. At the subsequent department meeting, the faculty spent 30-45 minutes going through the list of items, rearranging, rewording, and adding more ideas.

Our second charge: *Determine strategies using TOWS matrix*

At the next department meeting, Dr. Crawley showed the TOWS matrix (*Wehrich (1982)*) and explained the process of generating strategies that address the items in the original analysis.

	Strengths (S) List 5-10 internal strengths	Weaknesses (W) List 5-10 internal weaknesses
Opportunities (O) List 5-10 external opportunities	SO Strategies: Generate strategies here that use strengths to take advantage of opportunities	WO Strategies: Generate strategies here that take advantage of opportunities by overcoming weaknesses
Threats (T) List 5-10 external threats	ST Strategies: Generate strategies here that use strengths to avoid threats	WT Strategies: Generate strategies here that minimize weaknesses and avoid threats

To facilitate this step, a template was used once again. In this case the template consisted of the original SWOT items moved into matrix form. For example, for the SO Strategy cell in the TOWS matrix, the template looked something like the following. (Note that we have filled in a few sample items from our S and O discussions, just to give this concrete example.)

Sample Strengths	Sample Opportunities	SO Strategies
<ul style="list-style-type: none"> • Strong reputation of Sec Ed graduates • Faculty involvement in professional organizations • New faculty expertise in applied mathematics • Faculty-initiated activities outside class like weekly seminar and student research 	<ul style="list-style-type: none"> • Economy encouraging more students to choose Ship, raising enrollment • Current trends in improving STEM education provide grant opportunities • Physics and comp sci growth • Received \$5000 for advising excellence 	

Similar tables were created for ST Strategies, WO Strategies, and WT Strategies. Again this documented was placed on shared network space, and the faculty members were asked to fill in ideas for these strategies. To continue our concrete example, here are some samples of strategies that have been suggested so far:

SO Strategies (Using strengths to take advantage of opportunities)

- Pursue external grants relative to increasing STEM participation
- Create math-specific recruiting material for applied mathematics programs/careers
- Establish a formal network for visiting high schools or for bringing high school students to campus
- Spend some of the advising award monies on a retreat to facilitate discussions that will allow us to implement the strategies above

Department discussion of these strategies is set for the next department meeting, and the result of the entire exercise will be reported to Dean Mike.