Math/Statistics Goals and Outcomes as of 6/23/14

Closed bullets are goals, open bullets are outcomes that could be assessed.

- (A) Provide students with high-quality opportunities for in-depth study in the areas of statistics, applied mathematics and pure mathematics
    - (1) Students are successful when engaging mathematics and statistics after graduating from Cornell, whether in graduate or professional school, or in their first job.
- (B) Students will engage in meaningful experiences in and out of the classroom that help them understand statistics as vitally important to assessing information about the world.
    - (2) Students will be able to read, understand, and assess the validity of statistical arguments being made in a wide range of source material from popular media to research articles even if they do not, understand the specific technique being used.
    - (3) Students will use the context of any research question to drive all phases of the statistics process from collecting the proper data to reporting the conclusions.
- (C) The required capstone course for majors will challenge the student to read, write, think about, and apply statistics or mathematics, drawing on the knowledge and skills that they have acquired throughout their studies.
    - (4) Upon completion of a Mathematics and Statistics major students will have completed a capstone experience and will have demonstrated their ability to integrate skills and knowledge they have acquired by presenting the work they have done.
- (D) Students will develop (and improve) both their written and verbal communication skills in mathematics and statistics.
    - (5) Students will be able to clearly explain, both verbally and in writing, their solutions to mathematical and statistical problems.
    - (6) Statistics students will be able to clearly explain their analysis and conclusions in context and using common language that non-statisticians will understand.
- (E) Foster an environment that encourages students to creatively tackle problems they have not seen before and communicate their solutions to these problems.
    - (7) Students will be able to lead by example, involving themselves in mathematics, computer science, and statistics competitions, asking challenging questions, and seeking answers.
- (F) Students will develop the ability to transfer their mathematical and statistical knowledge and skills to further coursework and research in other disciplines.
    - (8) Students will be able to use correct statistical arguments to increase their understanding of other disciplines.
    - (9) Students will be able to use mathematical knowledge to gain insights into other disciplines.
- (G) Provide students with opportunities for outside of class cultural experiences relevant to mathematics and statistics.
    - (10) Upon completion of a Mathematics and Statistics major students will identify extracurricular events relevant to their educational program that they have experienced and describe how these experiences have contributed to their program.

Statistics (Educational) Opportunities

Intended Outcomes	STA 201	STA 202	STA 255	STA 257	STA 347	STA 348	Extracurricular
Read, understand, assess validity of stat arguments	I	IP	P	P		I	
Use context to drive statistical work	I	P	P	P	P	P	
Demonstrate ability to integrate skills and knowledge						IP	
Explain solutions to math/stat problems	I	IP	P	P	P	P	
Explain statistical analysis in non-stat terms	I	IP	P	P		P	
Be involved in math/stat/cs		O	O	O	O	O	O
Use correct stat arguments in other disciplines		IP		IP		IP	

Mathematics (Educational) Opportunities

Intended Outcomes

	MAT 110	MAT 119/120/121	MAT 122	MAT 221	MAT 231	MAT 234	MAT 236
Demonstrate ability to integrate skills and knowledge							
Explain solutions to math/stat problems	I	I	I	IP	P	P	P
Be involved in math/stat/cs	O			O	O	O	O
Use correct math arguments in other disciplines	I	I		P			P

Intended Outcomes

	Mathematics (Educational) Opportunities						
	MAT 301	MAT 317	MAT 327	MAT 328	MAT 337	MAT 338	Extracurricular
Demonstrate ability to integrate skills and knowledge				IP		IP	
Explain solutions to math/stat problems	P	P	P	P	P	P	O
Be involved in math/stat/cs	O	O	O	O	O	O	O
Use correct math arguments in other disciplines		P					O