Choosing to be the Outlier in a Mathematics Department

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RHIT is a small engineering school.
Let’s play a game!

- I will describe an activity I engaged in.
- You will vote...
Let’s play a game!

- I will describe an activity I engaged in.
- You will vote…Wicked Smart Play
Let’s play a game!

- I will describe an activity I engaged in.
- You will vote... Wicked Smart Play or Poor Life Choice
Consulting for JRSI...

Background:
- Joint Replacement Surgeons of Indiana (JRSI) operate a lab on campus and employ Biomedical Engineering Students.
- Often hired by third parties to conduct studies on devices used in knee and hip replacement.
- Not fully staffed for on-campus device studies.

Idea:
Volunteer as a consultant/collaborator for on-campus device studies.
Consulting for JRSI has led to professional and student projects.
Background:

- Each engineering department requires a senior project, generally for an external client, which requires testing of final design.
- Generally 2-year gap between introductory statistics and senior design lab.
- Institute has an “open-door” culture.

Idea:

Help seniors who drop in with the analysis of their data.
Consulting with students (without boundaries) can drain your time.
Asking colleagues for advice on tenure packet...

Background:
- Math department has 27 members; we have 2 statisticians (one is a new hire).
- Currently, no senior faculty member is a statistician.
- Institute-wide 2 and 4-year review. Tenure decision after 6 years.

Idea:
Ask for advice on what makes a successful tenure packet.
Asking colleagues for advice on tenure packet requires I keep in mind that mathematicians are different.
Attending USCOTS and JSM over JMM...

Background:

- US Conference on Teaching Statistics (USCOTS) occurs during our finals in the Spring and no one had heard of the conference before I attended.
- Joint Math Meetings (JMM) occur each January and are attended by well over half of my department.

Idea:

Choose to attend JSM and USCOTS instead of JMM each year.
Attending USCOTS and JSM over JMM provides me a network and encourages growth.
Randomization-based inference is natural...

Background:
- Introductory course included bootstrapping prior to my arrival on campus.
- Introductory course includes 25% - 30% probability.
- Generally taught in a traditional format; bootstrap is an afterthought.

Idea:
Propose removing Normal tables and time on by-hand computations in favor of including randomization-based inference.
Randomization-based inference is natural to statisticians, but foreign to mathematicians.
Supporting the colleague leading the development of an interdisciplinary data science program...

Background:

- Mathematician was tapped by the institute and our department chair to develop the program.
- He teaches the data mining, big data, and deep learning.
- He has close ties to the computer science department, where I do not.

Idea:

Insert myself as his primary support in development of data science.
Supporting the colleague leading the development of an interdisciplinary data science program is incredibly hard.
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I am affecting the average.

- Statistics can be a breath of fresh air to engineering students, but they struggle with ambiguity.
- I have my hands in a lot of projects (statistics minor, several new courses, biomathematics curriculum, data science program).
I am affecting the average.

- Statistics can be a breath of fresh air to engineering students, but they struggle with ambiguity.
- I have my hands in a lot of projects (statistics minor, several new courses, biomathematics curriculum, data science program).
- Consulted for and collaborated with other departments on campus (both professionally and as a faculty on student theses).
Overall, working at a small school was a wicked smart play...most days.