Multivariable Calculus

MATH 53

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UC Berkeley

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Course website:

`https://math.berkeley.edu/~zworski/syllabus53_23.html`

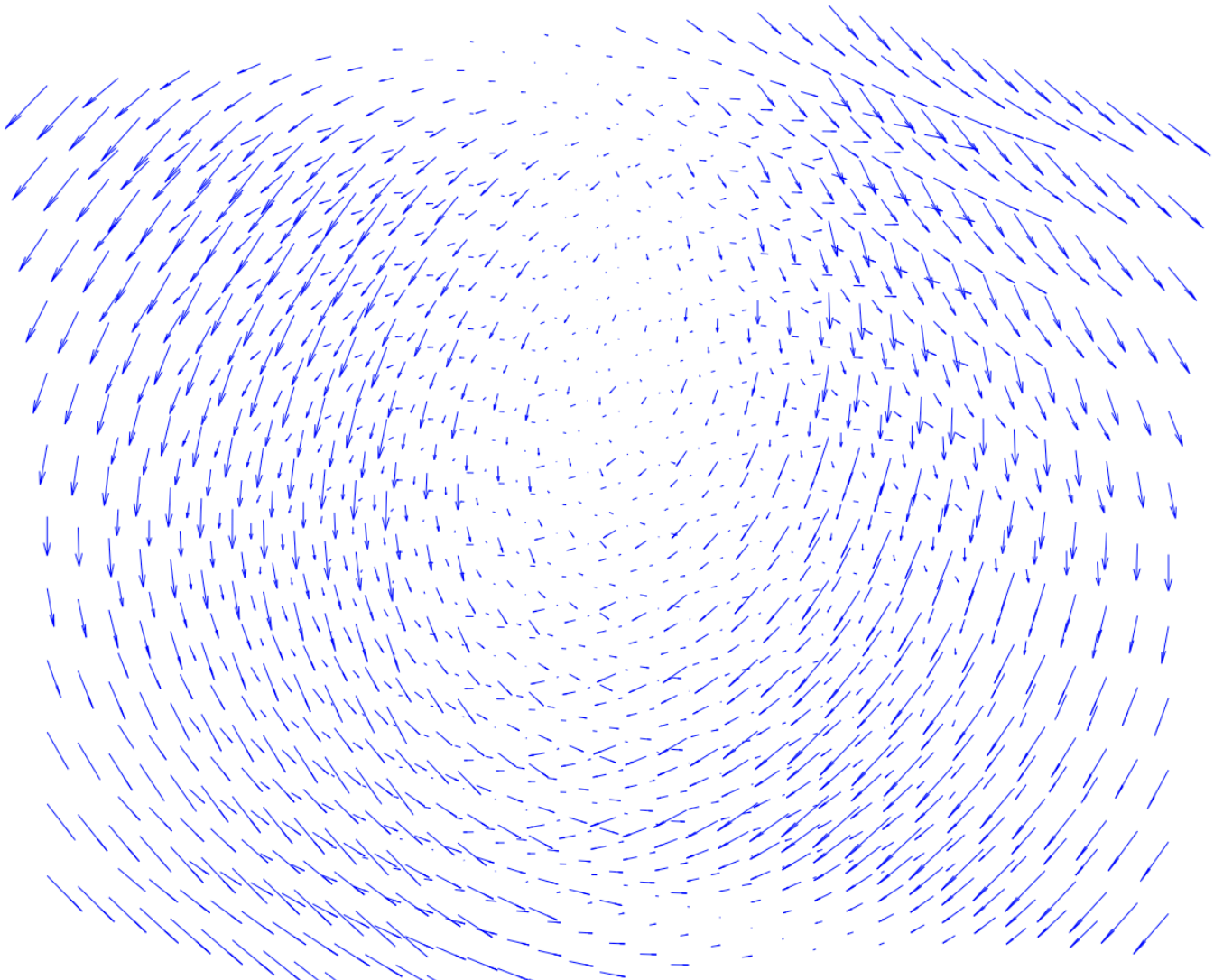
bCourse website:

`https://bcourses.berkeley.edu/courses/1526120`

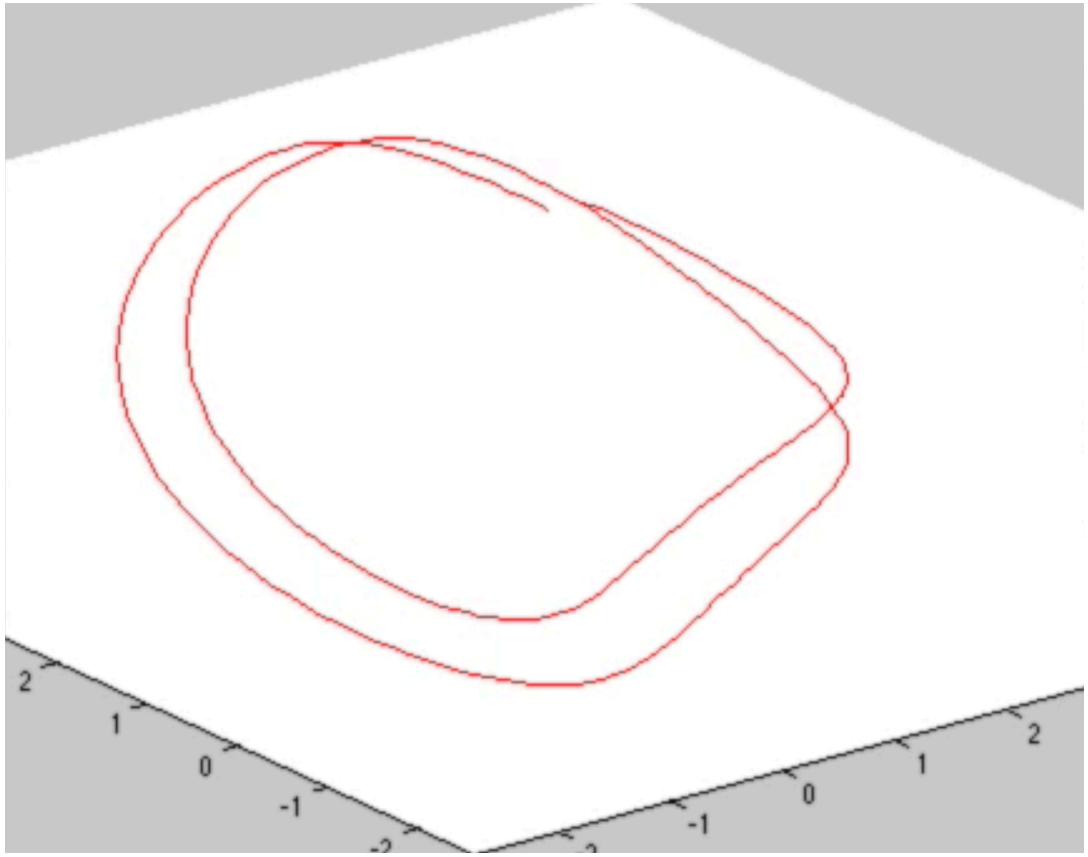
An example:

Assign to each point in three space (x, y, z) a vector:

$$(y, -x + yz, (1 - y^2))$$

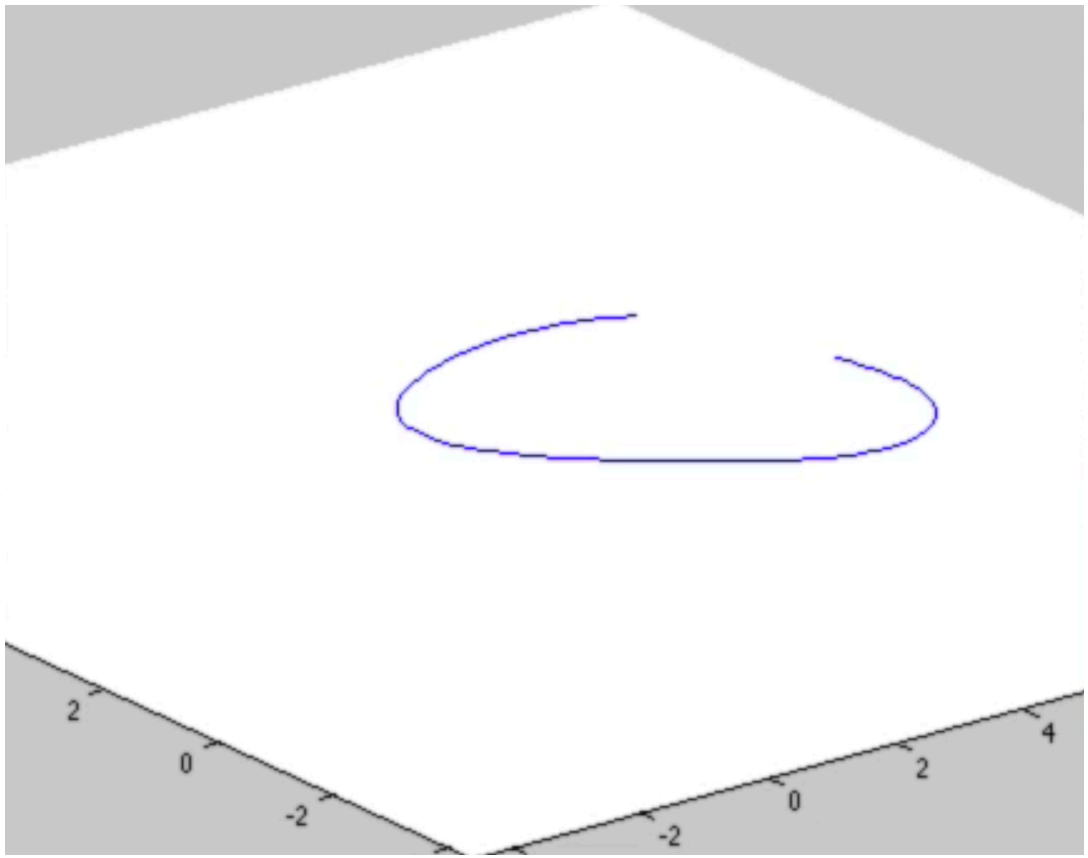


Going with the flow:



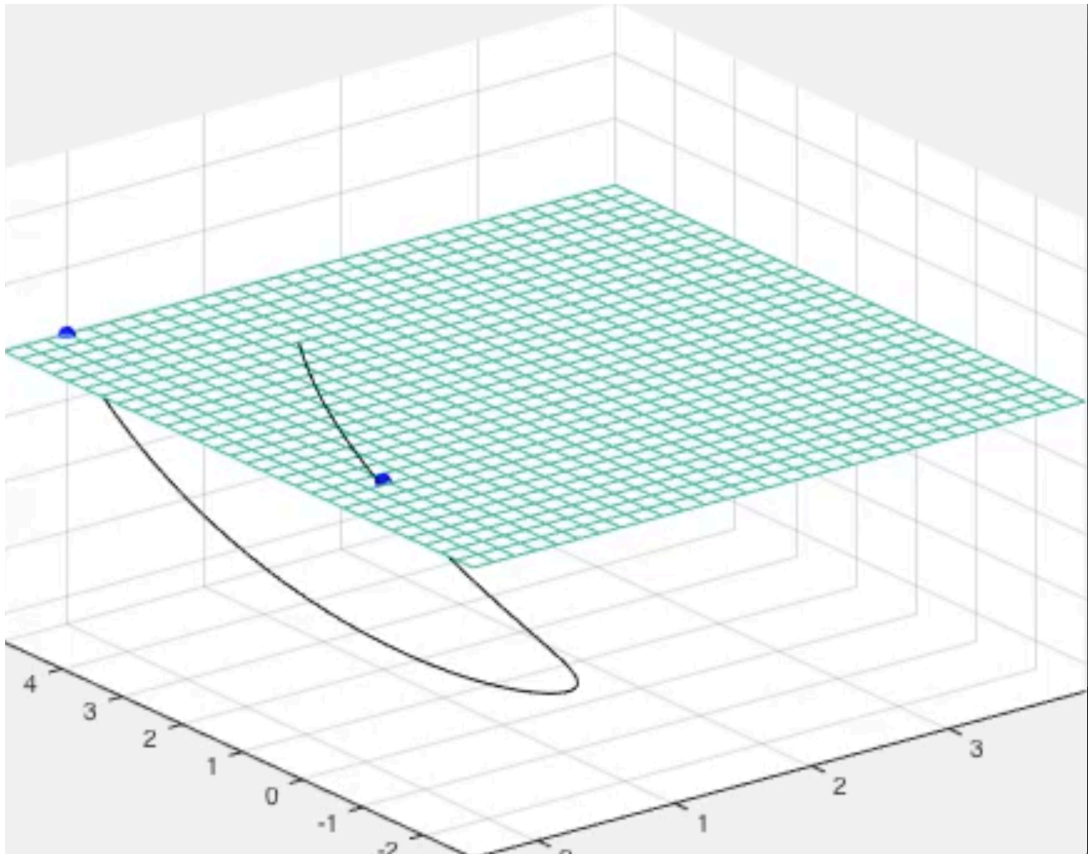
A “regular” trajectory

Going with the flow:

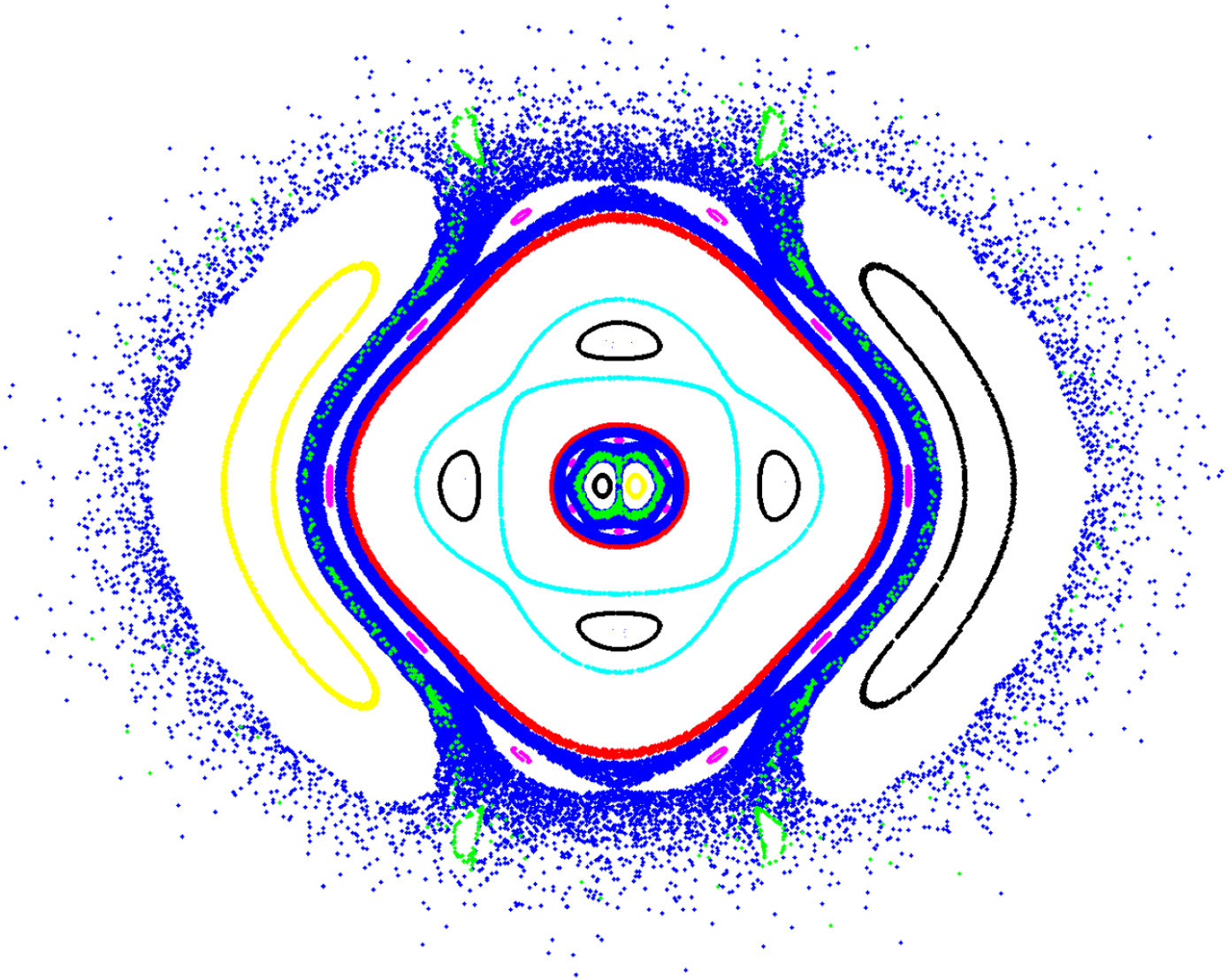


A “chaotic trajectory”

How to visualise this?



Chaos:

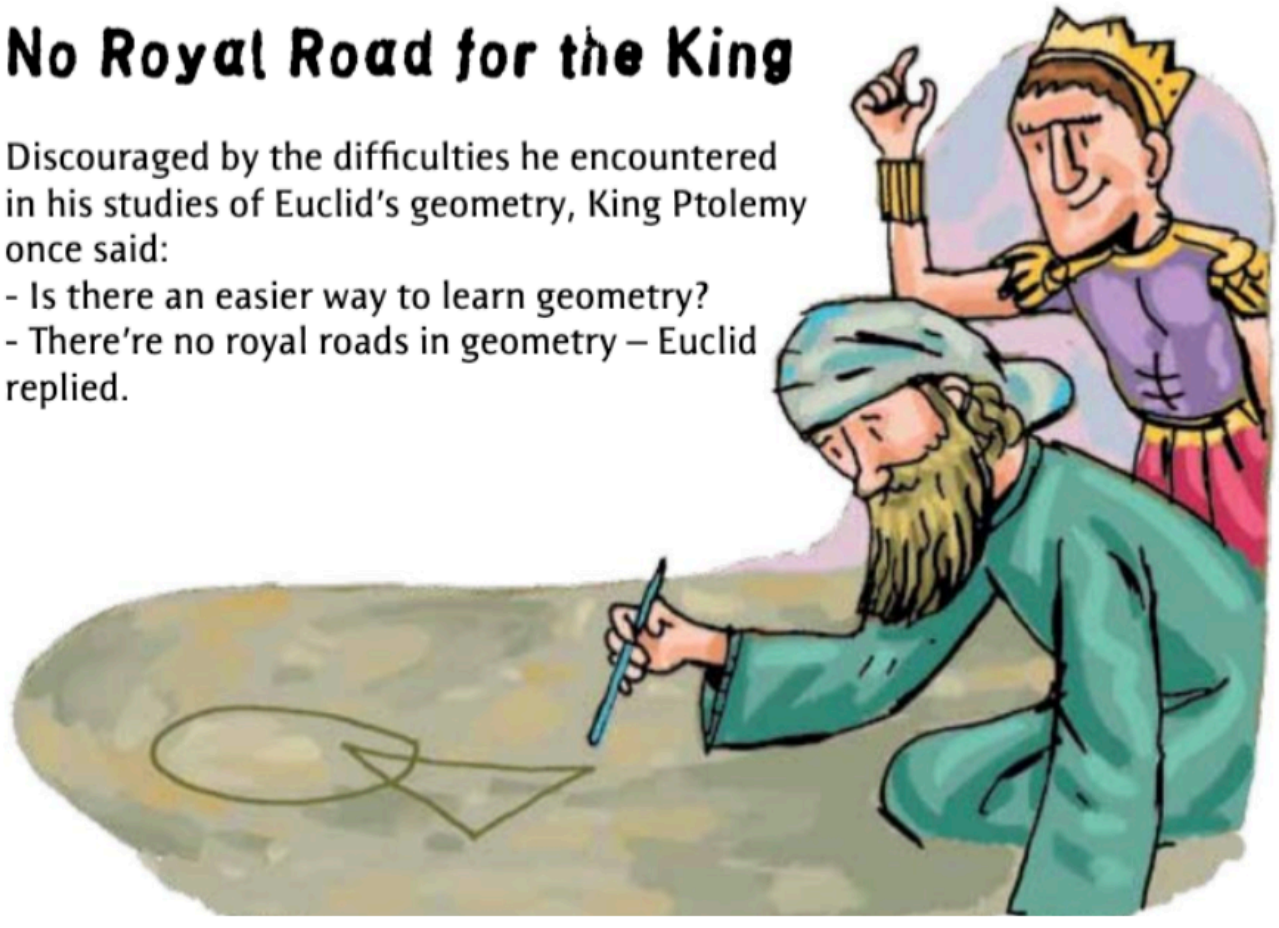


Math 53 will (hopefully) be less chaotic

Outline of the course

- Parametric equations (how to draw curves)
- Vectors and Planes
- Partial Derivatives
- Multiple Integrals
- Vector Calculus
- Maxwell Equations

Finally, some bad news...



Sadly, same for Multivariable Calculus...