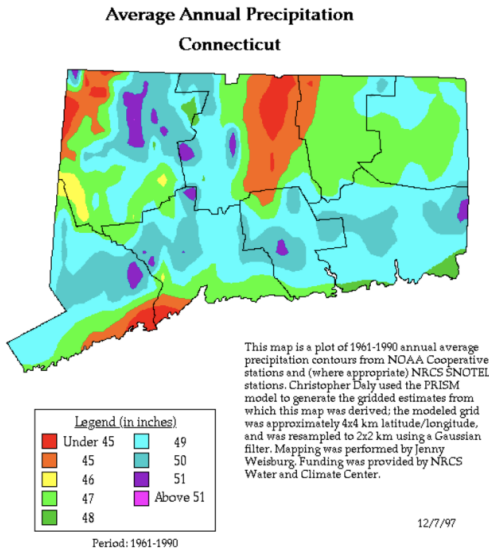


The **Calculus courses at WPI** include an **active-learning lab** that incorporates **real-world problems, mathematics and computer software** to delve into many topics of mathematics. Topics covered in these Calculus labs are varied and give a deeper insight into the topics students are learning in Calculus. We work on Riemann sums with weather maps.



We work on geometric series with loans and annuities.

Time	payment	PV factor	10000.000000 Amortization Table
0			
1	500	0.992280992	476.1624762
2	500	0.975294716	485.5414782
3	500	0.958357539	491.9187993
4	500	0.9414702476	491.3512974
5	500	0.924632186	491.7602652
6	500	0.907843537	491.1276563
7	500	0.891104313	490.448861
8	500	0.874414592	489.719261
9	500	0.8577744218	488.944481
10	500	0.841183834	488.1208265
11	500	0.824642929	487.2536845
12	500	0.808151716	486.3487911
13	500	0.791710311	485.4007615
14	500	0.775318733	484.4142414
15	500	0.758977003	483.384714
16	500	0.742685142	482.316829
17	500	0.726443171	481.215123
18	500	0.710251119	480.084256
19	500	0.694109106	478.920797
20	500	0.678017252	477.729316
21	500	0.661975587	476.515374
22	500	0.645984141	475.274549
23	500	0.630042944	474.012406
24	500	0.614152026	472.725615
25	500	0.598311417	471.419846
26	500	0.582521147	470.099871
27	500	0.566781246	468.761362
28	500	0.551091744	467.400081
29	500	0.535452671	466.012806
30	500	0.519864058	464.596406

We work on center-of-mass using body density functions with athletics.

We work on polar coordinates with cardioid microphones.



We work on improper integrals and probability density functions with insurance claims.

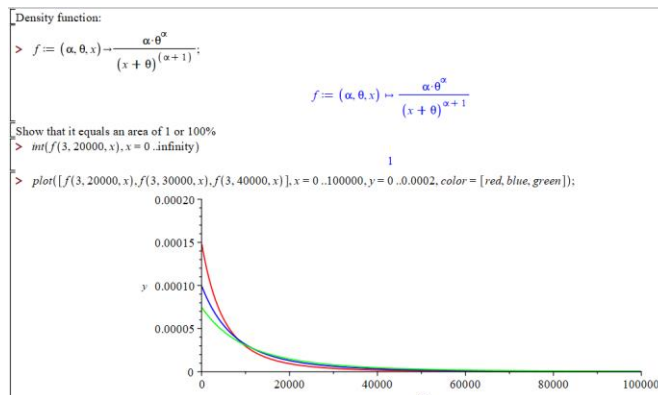
We work on exponential growth with bacteria experiments.

```
> gro:=t->525*exp(k*t);
> k:='k';
> k:=solve(gro(6)=1050,k);
> evalf(gro(36));
```

$$gro := t \mapsto 525 e^{kt}$$

$$k := k$$

$$k := \frac{\ln(2)}{6}$$

$$33600.$$


The software used in the active-learning labs includes



MATLAB

GeoGebra

Microsoft Excel

desmos