Epidemic: We will use the term *epidemic* in a very specific way when referring to the SIR model. An infectious disease passing through a population is an *epidemic* only when the number of infecteds is on the rise. Once the number of infecteds begins to decrease, the disease is no longer considered an *epidemic*.

Warm-up Exercise: Consider the following SIR model.

\[
\begin{align*}
S' &= -0.000006SI \\
I' &= 0.000006SI - (2/23)I \\
R' &= (2/23)I
\end{align*}
\]

What is the transmission coefficient? 

What is the recovery coefficient? 

How long, on average, is someone ill? 

If, on average, 1 out of every 50 contacts produces a infection, how many infecteds does a susceptible person encounter every day (again, on average)? 

Groupwork: During class today, we will try to develop IVP’s for the following situations.

A modification of the SIR model above after a partially successful vaccine is given to the population which cuts the infectiousness down to one quarter of its present infectiousness.
A modification of the SIR model above after a treatment is discovered which reduces the time one is sick to 3 days.

A modification of the SIR model above so that 1 out of every 200 persons who recover become susceptible again.

A modification of the SIR model above so that 1 out of every 30 persons who are infected dies, the rest recover.