



1643 Spruce Street, Boulder, CO, 80302, USA  
 Phone: 1 303 440 8524, Fax: 1 303 440 032

Course program\*: [Intermediate Risk Analysis](#)

EpiX Analytics, Boulder, CO

Participants are encouraged to prepare for the class by reviewing this [document](#). However, this is not a pre-requisite for attendance.

The course runs from 09:00 to 17:00 each day, but registrations on the first day begin at 8:30am. Morning and afternoon coffee and lunch are provided. A social event will be provided at the beginning of the course. The course will be delivered in English.

<i>Day 1</i>	<p>Introduction          Uncertainty, variability, and inter-individual variability</p> <ul style="list-style-type: none"> <li>○ Examples of modeling problems where uncertainty and variability are separated</li> <li>○ Structures of two-dimensional (second order) risk analysis models</li> </ul> <p>Binomial process</p> <ul style="list-style-type: none"> <li>○ Binomial, beta, negative binomial and geometric distributions</li> <li>○ Problems to solve</li> <li>○ Nested binomials</li> </ul> <p>Poisson process</p> <ul style="list-style-type: none"> <li>○ Poisson, gamma, m-Erlang and exponential distributions</li> <li>○ Mixed Poisson and binomial processes</li> </ul>
<i>Day 2</i>	<p>Poisson process (cont.)</p> <ul style="list-style-type: none"> <li>○ Problems to solve</li> <li>○ Renewal process and its modeling</li> </ul> <p>Hypergeometric process</p> <ul style="list-style-type: none"> <li>○ Hypergeometric and inverse hypergeometric distributions</li> <li>○ Problems to solve</li> </ul> <p>Central Limit Theorem: Normal and lognormal</p>
<i>Day 3</i>	<p>Classical Statistics</p> <ul style="list-style-type: none"> <li>○ Estimation of population mean and standard deviation</li> <li>○ Estimation of population prevalence and Poisson mean</li> </ul> <p>Bayesian Inference</p> <ul style="list-style-type: none"> <li>○ Theory and derivation</li> <li>○ Simple examples</li> </ul>



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	<ul style="list-style-type: none"><li>○ More involved examples (e.g. multi-parameter problems)</li><li>○ Problems to solve</li></ul>
<i>Day 4</i>	<p>The Bootstrap: Applications and problems to solve Determining distributions from data</p> <ul style="list-style-type: none"><li>○ First order distribution fitting</li><li>○ Fitting to parametric and non-parametric distributions</li><li>○ MLE and goodness of fit statistics</li><li>○ Using linear solvers with gof statistics for best fit</li><li>○ Second order distribution fitting</li><li>○ Parametric and non-parametric distributions</li><li>○ Likelihood estimating, Bootstrapping, other methods</li><li>○ Problems to solve</li></ul>
<i>Day 5</i>	<p>Times series modeling More advanced modeling techniques Looking at participants' modeling issues</p>

\*The program might be slightly modified based on relevance to audience.