# PREDICTIVE ANALYTICS AND RISK MANAGEMENT: FINANCIAL AND INSURANCE ANALYTICS, MS

*for the Master of Science in Predictive Analytics and Risk Management, Financial and Insurance Analytics concentration*

Courses will be scheduled so that students may complete the 32-hour program in one academic year. Each concentration requires 12 hours of common core courses, organized around three broad areas of expertise, including a case study course. Each concentration also requires 12 hours of related area coursework specific to the concentration, plus an additional 8 hours of electives from a prescribed list included in this proposal. At least 12 hours must be taken at the 500 level.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIN 530</td>
<td>Foundations in Risk Management</td>
<td>2</td>
</tr>
<tr>
<td>ASRM 410</td>
<td>Investments and Financial Markets</td>
<td>4</td>
</tr>
<tr>
<td>ASRM 539</td>
<td>Risk Analytics and Decision Making</td>
<td>2</td>
</tr>
<tr>
<td>ASRM 552</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Total Required Courses (see below)</strong></td>
<td><strong>12</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Electives (see below)</strong></td>
<td><strong>8</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td><strong>32</strong></td>
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</tbody>
</table>

**Other Requirements**

- Other requirements may overlap
- A concentration is required.
- Minimum 500-level Hours Required Overall: 12
- Minimum GPA: 2.75

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## Financial and Insurance Analytics Concentration

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 431</td>
<td>Applied Bayesian Analysis</td>
<td>12</td>
</tr>
<tr>
<td>STAT 432</td>
<td>Basics of Statistical Learning</td>
<td></td>
</tr>
<tr>
<td>STAT 480</td>
<td>Data Science Foundations</td>
<td></td>
</tr>
<tr>
<td><strong>Electives:</strong></td>
<td><strong>8</strong></td>
<td></td>
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Choose two of the following:  

- ASRM 409 | Stochastic Processes for Finance and Insurance  
- ASRM 499 | Topics in Actuarial Science                      
- ASRM 510 | Financial Mathematics                            
- ASRM 533 | Risk Management Practices and Regulation         
- ASRM 539 | Risk Analytics and Decision Making (if not taken as a core requirement) 
- ASRM 561 | Loss Data Analytics & Credibility                
- ASRM 569 | Extreme Value Theory and Catastrophe Modeling    
- ASRM 575 | Life Insurance and Pension Mathematics            
- ASRM 595 | Advanced Topics in Actuarial Science and Risk Analytics  
- FIN 431 | Property-Liability Insurance                     
- FIN 511 | Investments                                      
- FIN 512 | Financial Derivatives                            
- FIN 513 | Applications of Financial Engineering            
- FIN 514 | Valuation of Complex Derivative Securities       
- FIN 515 | Fixed Income Portfolios                          
- FIN 519 | Behavioral Finance                               
- FIN 526 | Investment Banking                               

*Information listed in this catalog is current as of 04/2022*
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>FIN 537</td>
<td>Financial Risk Management</td>
</tr>
<tr>
<td>FIN 551</td>
<td>International Finance</td>
</tr>
<tr>
<td>FIN 580</td>
<td>Special Topics in Finance (Big Data Analytics)</td>
</tr>
<tr>
<td>FIN 590</td>
<td>Individual Study and Research</td>
</tr>
<tr>
<td>MATH 563</td>
<td>Risk Modeling and Analysis</td>
</tr>
<tr>
<td>STAT 542</td>
<td>Statistical Learning</td>
</tr>
<tr>
<td>STAT 590</td>
<td>Individual Study and Research</td>
</tr>
</tbody>
</table>