UA/Eller MIS Analytics Curriculum (Recommendations highlighted in boldface)

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I. BS
   - MIS 301 Data Structures (Junming); need to focus on Python, syntax, ADT, searching/sorting, library, data, statistics, visualization (MIT Guttag book)
   - MIS 331 DBMS (Bin); relations, SQL
   - * (asterisk indicates prerequisite) MIS 464 Data Analytics (H Chen, Yong); web/data/text mining, DM algorithms, deep learning (CNN, RNN); possible for two semesters MIS 464A & MIS 464B (Fall, Spring)
   - MIS 373 Operations Management
   - * MIS 4XX/5XX, Optimization/Dynamic Programming (Youn); possible new class by Youn for OM and MIS BS and MS students
   - MIS 461/561, Data Visualization (Lusi); Tableau, Python/R viz, Tufte viz; need to go beyond Tableau, possible for BS and MS students (with less technical background)

II. MS
   - MIS 507 Intro to Web Computing (Daniel gone); Python, ADT, library, data analytics interface; possible to turn Daniel’s Perl class to Python for all MS & Ph.D. students
   - MIS 531 DBMS (Faiz); relations, SQL
   - * MIS 587 Business Intelligence (Yong); data warehouse, KPI, Web analytics; possible co-listed as MIS 487 elective
   - * MIS 510 Data & Web Mining (Gondy); intro to web, web APIs, DM and text mining; possible for Fall as Introduction required course
   - * MIS 545 Data Mining for Business (Bin); classification, clustering; possible to cover deep learning (CNN/RNN) for MS and Ph.D. students; possible co-listed as MIS 445 elective; possible for Spring after MIS 510 as elective
   - * MIS 584 Big Data Technologies (Yong); Hadoop, Spark; MLlib; possible use of AWS for free; need to combine with MIS 586 Big Data Analytics (Youn; currently wrong SNA content); possible co-listed as MIS 484 elective
   - MIS 5XX, Optimization (Youn); possible new course, see above
   - MIS 6XX Social Network Analysis (Sudha); possible for both Ph.D. and selected MS students

Possible Electives in Other Departments on Campus:
   - INFO 457/557, Deep Learning/NN (Bethard); basic NN and DL algorithms
   - INFO 450/550, Intro to AI (Morrison); search, logic, Markov DP, HMM, Reinforcement Learning
   - LING/CSC 539, Statistical NLP (Mihai); advanced NLP with deep learning, LSTM
   - SCO 526, Research Methods for SNA (Breiger); advanced SNA

III. Ph.D.
   - MIS 601 Statistical Foundations of ML (Junming); statistical basis for ML
   - MIS 611A Design Science (Yong)
   - MIS 611B Behavioral Research (Sue)
   - MIS 611C Econometrics Research (Wei); possible for both Ph.D. and selected MS students
   - MIS 696A Readings in MIS (Jay)
   - MIS 696D Data & Web Mining (H Chen, Gondy)
   - MIS 696X OR Research (Youn); possible new course after the successful BS/MS Optimization course
   - MIS 6XX SNA (Sudha), see above; approved recently