# **Teacher Notes for Fashion Merchandising**

## **Motivation and Essential Understandings**

Applications are using AI for the strategies of: (1) Marketing and Purchase Recommendations or Decisions, (2) Market Intelligence and Trend Prediction, and (3) Robotics in Clothing Production. Evidence-based strategies rely on data from products and consumers.

* How will this affect the workplace and future careers in fashion merchandising?
* What services in the fashion industry will benefit the most from employing AI?

## **Context and Dataset**

Students will interpret trends for fashion forecasting using data scraped from Amazon product pages.

This lesson will be part of a summative activity to research and propose a fashion trend for a selected product. Students incorporate in their final paper product trend data from web scrapes to demonstrate conceptual understanding of how data can be used in fashion research and forecasting.

## **Learning Objectives**

Students will be able to:

## Investigate how AI and data science are changing the Fashion Industry

## Identify possible sources for fashion trend data

## Create research questions useful for trend forecasting or future product development

## Recognize the predictive value of data analysis through visualizations Describe methods of exploratory data analysis used in research

## **Data Science Concepts and Skills**

1. Summary statistics
2. Exploratory data analysis; Static and interactive data visualization
3. Scraping data from product websites
4. Word Clouds
5. Bag of Words (BoW)

## **Students**

This lesson is for early to late undergraduate students. Students should be familiar with Excel spreadsheets. Though visualizations are produced using Python, students will not need to perform hands-on exercises in Python or R.

## **Time to Teach this Lesson**

This lesson can be taught in 2 sessions.

**First Week**: 1-hour prep, 2-hour class session; in-class activity on feature analysis of products

**Second Week**: 2-hour class session; in-class activity on visualizing product trends

## **Lesson Materials**

You will find all the lesson materials in the GenAI GitHub repository. The Jupyter notebook is not necessary to teach this lesson but is available to those who wish to teach more hands-on Data Science.

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| **Materials** | **File** | **Description** |
| Lecture 1 | Lecture\_1\_Fashion\_Merchandising\_2020.pptx | PPT Lecture on AI in fashion industry |
| Lecture 2 | Visualizations\_Fashion\_Merchandising\_2020.pptx | PPT Slides of Visualizations from AMZN scrape |
| Dataset |  | Dataset from AMZN scrape |
| Data dictionary |  | Pdf of data dictionary explaining the column headings (data fields) in the dataset |
| Jupyter notebook |  | Python scripts for visualizations and predictive model in an annotated Jupyter notebook |
| Jupyter notebook pdf |  | Pdf version of annotated Jupyter notebook |
| Template | Lesson\_Template\_Fashion\_Merchandising\_2020.docx | Lesson planner with links to resources |

## **Teaching Strategies**

* Review features, concepts of correlation, and reading histograms
* Pose **challenge questions** for engagement and allow students to interpret visualizations and hypothesize. Students may have difficulty limiting inferences to within the scope of the dataset, so discuss over-hypothesizing beyond the data.

## **Lesson Narrative**

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| **Module 0: Pre-lesson** |

Introduce AI in the Fashion Industry through readings, visiting websites (e.g., Stitchfix) and discussions.

Ask students to visit Amazon, search for 3 shoes, and identify product features (e.g., price, color, size), domain-specific language, and product competition. Ask students to formulate hypotheses about trend forecasting based on what they discover.

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| **Module 1: AI in Fashion + Dataset from AMZN Product Page** |

**Present how AI is disrupting the Fashion industry through lecture and in-class activities.**

* What is AI/Machine Learning (general)
* How does domain knowledge fit into technology?
* Examples of AI from a few industries + Examples of AI in fashion

**Question**: What can computers do? What do you think a computer cannot do in fashion?

* What is Machine Learning?

**Activity 1**: Look at Amazon shoes and find product features deemed important/trending. Discuss what information they think is relevant; Whiteboard features & classification (e.g., size vs. color)

**Activity 2**: Explore **Excel file of data** from scraping AMZN product page: What information was easy to gather? What’s categorical vs numerical data? How does it relate to problems with AI in Fashion?

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| **Module 2: Explain Predictive Modeling** |

**Present visualizations from the dataset.**

* Find product features in the **Correlation Matrix** and draw inferences
* Discuss how **Scatter Plots** and **Bar charts** facilitatefeature comparisons
* Discuss analyzing product reviews: **Distribution Plots, Word Clouds, Bag of Words (BoW)**
* **Use BoW** to establish trend comparisons between “nearest neighbor” products

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| **ASSIGNMENT:** Ask students to review the features and summary charts, and pose hypotheses for trends. Provide the students guidance on how to incorporate these findings into their final paper. |

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| **Module 3: Close Out** |

Post-assessment questions.

* What are some of the limitations of using this dataset?
* How would you change the layout of the product pages based on your analysis?
* How would you use social media as an alternate source of data?