Objective:

You are to individually write a review paper with one of two possible focuses:

1. review an analytical technique and highlight recent literature (published in the last 5-10 years) that has used the technique to answer a range of scientific questions
   OR
2. review a scientific problem/question and highlight the different analytical techniques that have been applied to address it and their conclusions.

Given the target audience described below, your paper should be informative, accessible, and engaging.

Audience:

Assume that your reader is an educated scientist, but not necessarily a chemist or specialist in your field. Review articles are often most useful to those that are trying to introduce themselves to a new topic. Keep in mind that your peers will also be providing the first round of critique, so your paper should be accessible to them.

Breakdown:

We will be working on the papers throughout the semester in 4 distinct phases:

Phase I: Idea and Reference Collecting. (**10 points**)
Submit a short description of your topic (<3 sentences) and at least 5 literature citations that you will use as the basis of your review. (**Due Date: Sunday, February 11 by midnight, submitted through Canvas**)

Phase II: Outline for Instructor Review. (**20 points**)
A detailed outline of your paper will be submitted through Blackboard. (**Due Date: Sunday, March 4 by midnight, submitted through Canvas**). Instructor comments on these drafts will be provided before the final paper is due.

Phase III: Abstract and Original Figure for Peer Review (**20 points**)
(a) Prepare an abstract and original figure (that includes a figure caption). This material should not exceed 1 page. (**Due Date: Friday, March 30 by midnight, submitted through Canvas**)

(b) At the next class Dr. Sharma will pass out your abstract and figure to 2 classmates. Everyone will read and comment on the abstracts they are given by the beginning of the following class (**Due Date: Sunday, April 8 by midnight, submitted through Canvas**; **10 points** for your review of your classmates' abstracts).

Phase IV: Final Paper. (**100 points**)
The final paper will be due at the end of the semester in lieu of a final exam. (**Due Date: Sunday, May 6 by midnight, submitted through Canvas**).

Length:
As stated above the abstract and original figure with its caption should not exceed 1 page (not counting the bibliography) while the detailed outline should not exceed 2 pages. The final paper has a 5-10 page limit including figures and the bibliography.

Grading:
Points for each phase are listed above.
Phase I will mostly be graded for clarity (do we understand what the topic and scope of your paper?) and for reasonable support from literature sources for that direction.
Phases II and III will only be counted for completion.
The grading of your final paper will focus on 3 major areas:

1. Clarity. Does the reader understand the topic(s) being presented and how the reviewed material is relevant to it? (This category also includes basic writing skills.)
2. Balance. The paper should review a certain breadth of scope of the topic while also providing enough discussion of the individual experiments for the reader to appreciate them in context.
3. Originality and Timeliness. The scope of your review should focus on an area that has not already been extensively reviewed by others and discusses an active area of interest with current literature as reference.

The final grade for the review paper will count for 30% of your final course grade as outlined in the syllabus. This will include the points from all 4 phases (so final paper grade is out of 160 points).

Final Thoughts:
The following quote is taken from the instructions to reviewers for the journal Chemical Reviews, which is published by the American Chemical Society:

Articles for Chemical Reviews should be authoritative, critical, and comprehensive reviews of recent research in the various fields of chemistry. Preference will be given to creative reviews on timely topics and to reviews that are likely to promote additional research. The scope should be clearly defined in the introduction. The author's own work in the field should not be singled out for special emphasis, and all contributors to the subject are to be treated on equal footing when selecting material for in-depth discussion. Articles must be readable; figures, formulae, etc. should be carefully organized and clearly labeled. It is to be assumed that readers are completely trained in fundamentals but that they have no extended knowledge of the specialized topic.