How to write outline of a research paper

1. Suggest a possible Title or titles- It should reflect the main concept of the paper
2. Suggested authors: Include names of those who have helped you in doing important tests and analysis.
3. Introduction:
   a) Identify points to be included in basic introduction (first para)- these should be kept at the minimum as the expert in the areas would know them well.

   b) Select relevant review of papers in the literature (state the papers you want to include and why). Select only the relevant papers that are close to your work (very important) and those that point to a gap in the work. Also select the papers that have appeared recently or are important references in that particular subtopic, where your work is aimed at. Should not use general references. If that is needed use a couple of review papers as references in the first para.

   c) Identify important 1-2 gaps in the literature based on above references that you wish to address through the present paper. Do not combine too many concepts together in one paper. Identify only one-two major issues. Or is it being done for the first time.

   d) List reasons as to why are those gaps important-technologically, scientifically or commercially. Those issues should relate to improving understanding of the topic being dealt with. Or what is the novelty?

   e) In the last para- State what is expected in the paper- briefly

4. Results and Discussion
   List the sections in which the paper may be divided (add or remove number of sections as required from the template)
   List the captions of graphs, tables, figures that you wish to include for each section
   Make those graphs, figures, tables and enclose in printed form with the template
   Write points that you will discuss with each figure/table and in what order
   Identify gaps in your work that needs to be completed before the paper can be sent
   Lay emphasis on how these points will address the gaps/novelty that were identified in the introduction section

5. Conclusions
   What are the major conclusions expected from of this study

Suggest journal(s) where this may be submitted. Fill the template below before taking a appointment for discussion on the paper.

Template to be used for writing outline:

Title:	
Authors in order	
Introduction	
Points for First para	
Points for Second – third para on literature review/prior work	
References of important literature	
Gaps in the earlier studies	
Importance of those gaps	
Last para: What is expected in this study	

Results and discussion	
Title of First section	
Data to be included (enclose data in printed form)	
Points to be discussed	
Title of second section	
Data to be included (enclose data)	
Points to be discussed	
Title for third section	
Data to be included (enclose data)	
Points to be discussed	

Title of the fourth section (if any)	
Data to be included (enclose data)	
Points to be made	
Title of Section on proposed mechanism/theory (if any)	
Data (Attach Theory/modeling data, figure for mechanism)	
Points for Discussion and comparison	
Conclusions	
Major conclusions	
Acknowledgements (include names of funding agencies other people who may have helped)	

Formatting guidelines:

1. **Captions of tables at top, figures at the bottom**
2. **Use all chemical polymer names should be in small alphabets, e.g. nylon, polyester, poly(vinyl alcohol), sodium nitrate; except trade names or proper names such as Teflon, Spectra**
3. **Give name of model, name of company (city and country in bracket)**
4. **Mw is avg value so indicate accordingly**
5. **All experimental values should be in moles (and g in bracket)**
6. **Provide short codes for all your samples, describe them in experimental section.**
7. **Talk about CV, number of samples tested, significant diff. methods used in experimental section**
8. Experiment should not be described in the results and discussion section. Only the reasons for choosing a method and the observations may be discussed in results and discussion, if needed.
9. Value and units should be separated by one space (e.g. 30 ml), except when using 5%.
10. **Standard form of units to be used, mostly SI units (s, m, kg), if not appropriate due to small size of sample or its nature, than other smaller units may be used such as g, ml, nm, etc. Use h not hr, g and not gm, min for minute, s and not sec, kg not kgs (only singular form of the unit needs to be used).**
11. **All captions, tables, and text should be double spaced in A4 size, 12 font times roman new.**
12. There should be space before ref bracket. Use ref bracket before full stop or comma. Give references at the beginning of the sentence itself as the discussion abut is being written, for example, In a study [ref], nylon was found to…; In the literature [ref], According to a recently reported [ref]; The reference should be provided at the first chance of giving a reference. Only in rare cases it can be given at the end of the sentence.
13. For set-ups, models use Scheme 1 Scheme 2 and give captions as Schematic representation of the plasma set-up used for …; Schematics of the chemical reactions involved in the synthesis of … etc.
14. Use et. al and not et al. or et. al.
15. If giving reference by name, e.g. Wong et. al [ref] has reported …
16. Give good attention ot Figures; all fonts used should be 8 points or higher after the figure is reduced to printing size in a journal.
17. Use thick line and use line formats or symbols in such a way that if the figures is reproduced in black and white, a reader is able to make out the difference between the curves used.
18. Use sample codes as legends in the figure and not a and b etc. unless it is not convenient to use codes.
19. Proper units must be given in the axis. If it is Vx1000 the it mean reading on the axis is equal to Vx1000. So the best way is to use multiplying factor inside a bracket V (x1000)

20. Use appropriate bar inside SEM images, units and codes used should be clearly visible/readable and use same size and units in the mag. bar, unless different magnifications are shown
21. Use standard methods of characterization wherever possible, give the reference of the original article or test name. If any change has been made, describe in brief the changes made in the procedure. If an important experimental method is used from another literature, give reference and then describe in brief the method used. Fir example. The nanoparticles were synthesized using a method reported in the literature. In short, 5 ml of a was added to 45 ml of B in a three necked flask and heated at 98 ^{o}C for 10 h.
22. In results and discussion: First write about the observation (visual) if any such as quality of plasma, colour of mixture, dispersion behaviour, etc.; then discuss the data using figures and tables, then give analysis of the data, and discuss its importance with respect to the goal of the study or the other papers published (if necessary and important).
23. As a rule never criticize the other literature, just bring out your positive aspects of your study or the gaps that exists in the literature.
24. Never say your results prove a mechanism, but use milder words such as likely, appears, infers, possibly, indicates,
25. Always use investigated, studied, and not optimized (unless your paper is on optimization)
26. Use either American or UK English, never mix the two. Try to use American for US journals.
27. Give special attention to spaces when you accept the track changes made by us, as we may not have left space between the two words or left two spaces.
28. Whenever you make changes to a draft we have already worked on, make them in red colour so that we need not read the entire text again.
29. Choose authors carefully, all those who have helped you in a significant manner should be included in order of their importance.
30. Give enough references
31. Give references for the journal in which you want to publish
32. Give some recent references (same year's or previous year's), very important to show that area is relevant.
33. Prepare graphical abstract if the journal requires it
34. Format your references in at least 2-3 journal types so that paper may be easily formatted for different journal if needed.
35. Schematic diagram to explain a possible mechanism always adds value to a paper.
36. Select a journal keeping in mind what is being published in recent times in that journal and not a few years ago.
37. Look for journals of different areas that may be high impact but not used by traditional studies. E.g cellulose, carbohydrate for textile application work.
38. Make sure all the formatting instructions of the journal have been adhered to.

39. Always use a coma before an after, respectively, if used somewhere within the sentence and before it if used at the end of the sentence, e.g. ,respectively, or ,respectively.
40. When multiple values are given one after another, the units may be used only once with last value.
41. Figure 1 Figure 2 etc. should be referred to as the proper names and not 'the Figure 1' or 'the Table 1.' But when not using Figure 1 and Figure 2 etc., you may use as ….the figure shows… or ….the table shows…etc.
42. For one figure use, Figure 1, Figure 2 but for many use Figures 2 & 3 or Figures 1(a-g)