Writing and oral presentations

I'd like to welcome you to this module on writing and oral presentations. My name is Gerald Maguire.

Slide 2: Communication tools & techniques

With a whole variety of communication tools and techniques ranging from oral presentations, conference papers, journal papers, websites, blogs, with open source software and, of course, open-source hardware. There are a variety of applications and products, all sorts of news releases (of course) we have podcasts, video and multimedia presentations, popular books, newspaper columns, etc. And some of you may even during the course of your career communicate with journalists, reporters, and others. Each of these is a different sort of tool, and again you need to learn how to use your tools appropriately.

Slide 3: Identify who is your audience

So the first thing, of course, is you need to identify who your audience is. And then you need to understand - What is it that they already know? What do they need to know? And what do they expect? And what ís going to make them interested in what you have to say? Because you need to understand what their motivation is - so that you properly address what you're saying - so that (in fact) it's going to be the most appropriate impedance match for what it is that they are expecting. And then you have to think about what it is you want them to do after your presentation, i.e., what do you expect to occur. Now, George Gopen and Judith Swan in an article called "The Science of Scientific Writing: If the reader is to grasp what the writer means, the writer must understand what the reader needs" from the American Scientist - it is a very good article to read about each of these points, to really consider, what is it that your audience wants and what is it that you need to deliver so that both of you were successful in this process of communication.

Slide 4: Writing

We will begin the process of writing.

Slide 5: Get into the habit of reading

The first thing to be a good writer - is you have to get in the habit of reading. You need to read a lot, and you need to read regularly, both conferences & journals, websites, and, of course, you need to read critically. As you read critically, you need to write down the reference's bibliographic information for the material that you're reading so that you can make good notes, and you can go back to your source again - should you decide that "mmhm, that was really interesting. Now, exactly where was that I want to go and see exactly what they said" or "was the number 2.5 or 2.7". Now one tool that can help you with this is, of course, a reference manager, such as Zotero, and in another one of these modules, we have

talked about this tool. But the key thing that you need to think about is: Can you find the reference six months or a year from now? Can your reader find that reference? And if you can't find it [CLICK], it is unlikely that your reader is going to be able to find it. You also need to organize copies of what you read - so you can find them again. And as Ted Nelson says, “If you don’t write it down, it is gone!”

Slide 6: Get into the habit of writing

So, like any other task, if you're going to be successful in it - you need to spend time doing it. And for most tasks, it estimated that it takes approximately ten to the fourth hours to become an expert. So, if you're going to write, that means you need to practice by writing some every day. And many they say that if you don't spend four hours a day doing it, you will never become an expert. Now, John Hayes, looking at the cognitive and social processes involved in writing, has emphasized that each person because they have a limited working memory capacity - has to think about: "What's that set of things that someone can remember both as a writer and as a reader". Because if we exceed that working set, then the problem is that the person is going to be missing some of the information that perhaps we wanted them to have in their mind, as they're reading what we're writing. He also emphasized that writing is a generative intellectual activity. That means it takes time and motivation to generate the material that you're going to produce. So he describes rule number one as: Create regular time blocks for writing as appointments in your calendar and keep these appointments.” So that in fact you actually really do spend that time writing. And Elena Kallestinova describes this rule in her paper, and you can find the reference in the notes for the module.

Slide 7: Flower and Hayes cognitive model of writing process

Now, Flower and Hayes, in 1981, describe what they call the "cognitive model of the writing process" And it begins at the top with planning. That's when you're going to generate your ideas, you're going to organize them, and you're going to set a number of goals - those are going be the sub-tasks that you're going to try to achieve as you do your writing. Then the second step is translating - that's taking those plans and turning them into text, pictures, illustrations, tables, etc. And the third step is reviewing. You really now need to sit down and read it yourself - with a fresh set of eyes. And then, you need to edit it. And of course, throughout this whole process, you need to monitor what you're doing. This is part of this metacognition - thinking about what it is that you're thinking about and doing - which will help make you an expert. The process of reading and editing is very, very important. And typically, you're going to have to repeat that many many times - if you're going to produce a very highly polished output.

Slide 8: Writing strategies

Now there are two basic writing strategies, and people describe them as Beethovian: Write everything down and then edit it. Or Motzartian, like Motzart, you compose everything in your head, and then you sit down and write it down. Now, people vary between these two. Some people work in one mode, some in the other and some switch between these modes for

different types of activities. But the key feature is that at some point you actually need to write it down. And whether you edit it in your head or whether you edit after you write it down - you've also got to consider that editing is an important part of the writing process.

Slide 9: Mike Sharples' external representation model: stages of planning and text production

Now, Mike Sharples looks at it in terms of what he calls "external representation models", i.e., the manifestation of how it's written. And he divides these into the Uninstantiated and Instantiated. And then he divides those further using this matrix into unorganized, nonlinear organization, and linear organization. And he basically says you can start in any one of these boxes and follow any path that leads to the lower right-hand corner, which is the linear text that you want. Now, of course, some of you may at some point in your career also be deal with nonlinear media - in which case, you may actually say I don't want a linear stream of text, I really want a hypertext, and therefore you will proceed in a slightly different manner. But for most of the writing that you will do for courses, you're going to end up trying to produce linear text.

Slide 10: Non-linear documents

Now, as I mentioned, hypermedia is becoming more and more popular, and one of the reasons why - is because the recipient (in this case the reader or the viewer) gets to choose their own path through your content. And there been a number of tools, such as Hyperwave and other tools, to facilitate users accessing hypermedia. However, today this is still an area in its infancy, but it's growing. And people have understood based on different cognitive models, that different people are going to follow different links, in fact, some organizations in the material that they produce, the first thing they do is trying to identify what type of learner the participant is and then target the material in the paths that they offer to the user (through the material) to facilitate the type of learning that that learner does best - whether they're visually oriented or orally oriented or perhaps they are focused on doing things - in which case, then different material should be presented to them.

Slide 11: Four things to think about when writing

Now there are four basic things to think of when you're writing. Of course, the first of these is: What you want to say? And that's about the content. But the second thing is: What are you going to say? This is the structure of the argument. How do you organize things so that your reader - who doesn't have a chance to interact with you - is going to see your argument and understand the support for the things that you say? And understand how one thing leads to the other, which hopefully leads to the conclusion that you presented. The third part is: What's your reader going to think when they read what you've written? And that is, of course, the communication. But finally, and the essential thing is, of course, step number four, as we mentioned earlier: What do you want your reader to do after they have read what you've written? And that's about an effect. So you can think of this is a process where your

communication is being done for a purpose, and that's, of course, to achieve a given effect. Do you want them to change the way that they organize their datacenter? Do you want to have your protocol adopted? Do you want them to use a different model for the network on a chip? It is about having an effect upon your readers.

Slide 12: Writing for a thesis

Now, when you're writing a thesis, I advise students that one of the most important things is, of course, to try to write every day - at least half a page. But when you think of a question, write it down. And then when you think of an answer, you can write it down. But also reflect on what you have written. At least once a week, step back and look at your table of contents and see: "What is that I've written" "What should I be writing this next week" - the places where the outline is still sketchy, and there are just place holders. And to, of course, revise the things that you've written - including the abstract - because as you work along sometimes to see where your focus is going to be and what you view as your final goal is - is going to shift based upon what it is that you've learned as you've gone along.

Slide 13: Choose your writing tool(s)

Now. as we talked about tools before, an important thing is choosing your tools. And you can, of course, write with pen and paper, a pen and pencil, etc. But you can also think about using a text editor and lots of people like using a text editor such as emacs, for all the many tools that it offers, such as spelling correctors, etc. Other people like using command-line tools like LaTeX. And many people really love what you see is what you get or WYSIWYG tools, like Microsoft Word, OpenOffice Writer, Libre office, Adobe Framemaker, etc. etc. The key really here is once again to find the tool that you are most comfortable using and learn to use it well.

Slide 14: Command line tools

Now some of the command line tools that you can use are useful - even if you've chosen a different tool to use for your writing. Because you may use it to supplement the capabilities of your tool, so for example, you might use command-line tools to automate your text processing, and we will see an example of that later where we can use it to find likely acronyms. So that now we can easily build a table of our abbreviations and acronyms and then go searching through our text for the first occurrence and make sure we spelled it out, make sure we put all of the acronyms and abbreviations in our list of acronyms and abbreviations, etc. But one of the most important tools to learn about is spelling checking tools. Because if it's one thing that will make your reader annoyed - it's finding lots of spelling errors. Now, in some cases, it may be a word this correctly spelled, but it is not a word appropriate to wear it appears, and therefore tools like the Writer's Workbench diction and style programs are very useful. And in the past, some of my colleagues have found this extremely useful when they were not native speakers of English - because they can get helpful hints about how to improve their writing. One of my colleagues today said that he uses LaTeX, but he writes the documents in emacs, putting one sentence per line. Then he

puts the entire thing into Word so that he can take advantage of Word's spelling correction and grammar checking automatically for him. So as I said, you may need to supplement your favorite tool with other tools, but the goal, in the end, is that you want to be successful in producing high-quality output. So again, use the tools.

Slide 15: Spell checkers: GNU Aspell

One of the popular tools that you can use is gnu Aspell. This is a particularly interesting tool because it offers you the ability to change dictionaries easily. So you might need to spell English, but use the great British dictionary or use a Swedish dictionary, etc. etc. And so this is convenient, and there were quite a lot of varieties available of dictionaries.

Slide 16: Spell checkers: ispell

You can also think about the interactive spellers, such as ispell where inside emacs you saying meta-X ispell or meta-X ispell-word to check the spelling of a particular word. And then it will offer you a set of choices for you to choose from -"yes, that's the one that I want."

Slide 17: Princeton University's Wordnet®

Princeton University has an interesting tool called wordnet. And it is a lexical database for English, and you can get it from the URL shown here: wordnet.Princeton.edu. It runs as a command-line program "wn" or is a windows version, and the X-windows implementation is called "wnb". The idea here is that you can search for words and you can look at the different senses of the words, and you can find other really useful things so that you can vary your word choice - so that your reader isn't bored because you're saying things using the same words at all times. And also so you can find the word with the right subtle nuance that you want to use. So, in this case, I entered the word "introspection" and it said "introspection - self-contemplation, self-examination, contemplation of your own thoughts and desires and conduct".

Slide 18: Another example from Wordnet®

And then I could say, "mmhm, well what's reflection", and now you could find that the noun reflection has eight different senses, and we can find these different senses, and it gives us some related words. So we can see in the eighth one it's about "reflection" or "reflectivity" - "the ability to reflect beams or rays" or maybe what we really want is reflection as "a mirror image a likeness in which the left and right are switched".

Slide 19: Wordnet® searches

So we can use this to help find, using the tools available in it, synonyms, homonyms, etc. So you may find it to be useful.

Slide 20: WWB diction: Grammar checking

http://www.gnu.org/software/diction/diction.html

I mentioned earlier the Writer's Workbench, which can do grammar checking. In this case, I input to it the project plan template for 2015, and it gave me a number of elements of feedback. So there were 49 phrases in the 100 sentences it found.

Slide 21: WWB style: checking for readability

http://www.gnu.org/software/diction/diction.html

It can give me statistics, such as the readability, and here we can see the Kincaid (Flesch-Kincaid Grade Level) index that represents the rough US grade level. So, if we add six to it, we get roughly the age of the people that would be reading this text comfortably. We can get automated readability indexes and other sorts of things. Now the great advantage for this is each one of those is that, of course, you can reprocess it. Because you want to make a lower Fleisch index you want to be [expert] or a higher Fleisch index because you want to make it closer to plain English and you want to have a larger set of people understand what you're writing rather than only a few experts being able to do that.

Slide 22: WWB style (continued)

So as I said previously - use the tools to help you. So in this case, Writer's Workbenchsaid about the project plan template - there was 5749 characters, [1178] number of words, the average length of the words was 4.88 characters - 1.56 syllables, how many sentences, their average length - we see the about half the sentences are short, about 10% of them are very long, we see how many were questions, how many were passive, we see what types of verbs we have used, etc. So this can help us and giving us feedback about what we're writing, and again we can rerun the tool to help us.

Slide 23: WWB style command line options

Now there are a variety of options that you can give to this tool. So that you can say "really, I'm only interested in finding the overly long sentences". And I, in particular, have a problem, because I like writing overly long sentences. And my wife and others regularly point out, "No, no! You need to split this up so that you can give a person a least a chance to breathe". So you can say "--print-long" and only get sentences that are longer than a particular length in words.

Slide 24: Finding acronyms to put into List of Acronyms and abbreviations

I mentioned earlier the idea that you could use a command-line tool to find acronyms. Here is a very simple little shell tool that simply goes and splits the words based on there being blanks, puts in newlines, now we have one word per line. We feed that now is a system where we get rid of the punctuation, we sort the words, we pull out the unique words, we sort them

and count them, and we remove all the lowercase words and numbers; and what we're left with are typically (yes) the acronyms that we probably should have spelled out. And now, we need to check and make sure that we really have.

Slide 25: Document processing (Microsoft Word, OpenOffice, LaTeX, …)

Now a very important thing if you're going to use a tool, such as Microsoft Word or open office or LaTeX, is to start with a good template. And what's a template? Well, a template is basically exactly what its name says - it gives us a structured layout, it gives us names for the parts of the things that we're going to work with.

Slide 26: Make use of built-in templates: Microsoft Word2010

So here we go into Microsoft Word, we can say that we want a blank document or do I want to use a book - so they're already premade templates. And one can find typically in whatever organization you're in an appropriate topic. So in this case, for instance, we look at reports, we go into reports, and we see the academic papers and reports, we can go into that, and pull out a template that hopefully suits the particular task that we're trying to achieve. But it is really important that you make use of templates.

Slide 27: Make use of external templates: Microsoft Word2010

You can install additional templates. So, for example, I have made the project plan template, the template that you can import and attached to your document, and therefore use exactly those sets of styles.

Slide 28: Making use of Styles

And this idea of styles is very important because the result is I can say that something is going to be a particular level heading, and now all my headings of that level can have that particular style. In quite a lot of documents that I produce, I want numbered headings, and I want the headings below them to have a hierarchical number so that you might have chapter two section three - Section 2.3 and its title, etc. And it's very easy to systematically make use of these styles to really relieved us of a lot of work. Because we can specify do we want this text to stay with the text that follows it. So, for example, I typically define a figure as a style, and I say that I wanted to stay with the style that follows it, and the paragraph that follows is going to be the caption for the figure. So now, if the figure moves, the caption stays with it. I can choose the style in terms of font-family, the face to be a one boldface italics, etc. And I can, of course, set the sizes. And as I plan the layout of the document if I'm doing a document design - I want to have the largest level headings - chapters or a title - be larger than the sections and they in turn larger than the subsections and they are in turn larger than paragraph headings, Now in some cases, I may have to go in and tweak a little bit - just to get exactly what you want. So for example, one of the things that quite often happens is you would really like to have the text so that the sentence finishes by the bottom of the page and doesn't split

up over two pages - so you might have to go in and adjust the spacing by changing the point size of a word perhaps reducing it by just one point - which is largely unnoticeable to the reader - but now will nicely layout on your page. However, it is important to note that in some settings you are not allowed to modify the styles because the publishers or the organization has a particular style that they want rigidly adhered to - in which case then you have to do as Don Knuth regularly did - which is rewrite your text so that it lays out in the way that you would like to do while following the style that you have to follow.

Slide 29: Some common mistakes: General

Some common mistakes when you're writing documents, particularly for a course such as this, is you write incomplete references or you're missing important citations, you have forgotten that (yes) I really should have substantiated why did I make this particular statement - because I don't provide the evidence of it in my work, but I know there's this book, a textbook, reference book, a journal paper, etc. that actually does that for me, and I'm going to cite them because they are the authority on this and now I help support my argument. Now how can the reference be missing material? Well, it might be missing the title or the date, or the authors or you misspelled the author's name. And having a last name is regularly misspelled; this can lead to a very very big mistake and difficulties of life for both you and the people that you are citing. That's why many people suggest it's very important as you begin as a professional to choose how you're going to write your name. Are you going to always initialize your first name? Are you going to initialize a middle initial? Are you going to use a compound name? Exactly how is it that you want to be known? And then be consistent in doing that throughout all of your writing. Now today, that's a little simplified by the use of things like ORCIDs, where in fact, a given ORCID is bound to the author, and no matter how they changed their name over their lifetime - they're still able to be recognized as a particular author. But keep in mind, the goal of writing the reference is so that you or someone else can actually find the reference at a later point in time. So try to be as complete as you can. As I mentioned, it's important to have the date. Therefore, when you're writing documents, it is important that you write the date (typically on the cover) so that now when I look at a particular version of the document, I know when that's from. Because if I have multiple versions of the document, it may become hard telling them apart. And there may be differences between them, and therefore I need to refer to the particular one on a given date provides a very useful way of doing that. So it also important to put page numbers on documents. If you've ever seen somebody with a pile of papers and they accidentally drop it and now they try to put it back together - if it doesn't have page numbers on it and it's more than a few pages long - they may never succeed in getting it back together -- unless they're going to spend an awful lot of time. You want to make life easier for your reader - add the page numbers. It's also important to add the page numbers because someone might want to note that (yes) in this particular article or this particular document you said something and they could refer to that directly by pointing to the document information in their citation and citing the particular page number where it appears. Now, if you read a document and you notice that "oops" it's not spell checked, it's poorly written, then chances are pretty good that you may just give up and not read the document. Why? Because you know whoever wrote it

didn't care enough to even check for these basic things. And, of course, in some cases, tools make mistakes sentences are broken, and the rest of the sentence is never output, or they're missing phrases. Or a very common problem here between North America and Europe (yes) it's someone used the wrong page size. So they use US letter size instead of A4 paper, in which case again it looks like they really didn't care if they were expected to produce it in a particular style in a particular format for a particular size of paper that it is going to be printed on. Now, I, in general, like documents that have hierarchical numbering of sections. And one of the reasons is that it makes cross-references very easy. So I can say, "the details of this can be found in Section 2.5". But the other reason is that the hierarchy helps to bring out the structure of the document. So it makes it much easier for your readers to see which are the major parts and which are the minor parts. And now, they get a better conception of what it is that you're doing and how you organized your writing. Another important thing is to remember that the human eye as you're going down the page is looking for bricks - it's looking for where does one paragraph begin and where does the next one end. So an easy way to make sure that the user can see that is both add a little bit of vertical white space and indent the first line of each paragraph by just a little bit 2 to 3 em. Now, what's an "em" you might ask? That's the width of the lowercase letter "m" and the nice advantage of this is if you use that rule, it scales as you change your font's size.

Slide 30: Some common mistakes: Writing

Now some common mistakes when writing are, of course, making statements without any supporting reference or without any justification, and now your reader is left wondering "mmhm, am I expected to know that is that generally known or did they just make this up and want me to believe it?" And they just hope that maybe I'll believe, "Oh, yes, that's true" even though they have been justified it or cited it - a bad mistake! Another mistake is using contractions ("can't" and "won't"). So the easy way to remember this is, "You can't use contractions in a formal paper!" Another problem is using acronyms and abbreviations without spelling them out. This is particularly bad - because lots of acronyms have multiple meanings. And this is particularly true where we have the same acronyms appearing and used in different subfields having completely different meanings. That means that your reader may have a problem understanding what you mean when you use that particular acronym. So make it easy for them - spell it out! Another reason is that your paper might last for a very long period of time, in which case the acronym may have changed its meaning. So, how many people today would remember what a floppy disk was, and so if you use the acronym FD - they'll wonder: What is it?

Another thing to avoid is redundant text. It is all too common that you can see that the author is basically copy-and-paste plagiarizing their own words - taking the same text that they have said in one place and pasting it in somewhere else. This clearly indicates that haven't done a very good job editing. You want to avoid that. Once you've written it - referred to it - if you need to refer to using exact those same words, otherwise describe it in a way suitable for it is that you're using that idea once again. Another mistake is using too few references. Quite often, if I see a student's document, I'll see a reference at the end of a paragraph which is, of course, a completely inappropriate way of referencing your material - you need to cite the

specific things where it is that you want to use that particular reference. You can't just say, "Oh! Everything in this paragraph all came from that one source". Well if I see that, then what I typically do is say, "Well, then why don't I go and read that source and ignore what it is that you have written" It's also a problem when you have too few references, so either this is so amazing new that no one has thought about this before or maybe you have a dug into the literature enough to see has someone else already done previous work on this, if so "mmhm, how does my work differ from what it is that they've written - maybe I can learn from them what metrics they used when they were evaluating their system so that I can use those same metrics" and "So I can easily make a comparison between my method and their method and their results and my results" Another thing to avoid single-sentence paragraphs. In general, if you're going to have a paragraph you want a number of sentences that are all related to each other, but if I just see single sentence paragraph after single sentence paragraph - it starts looking like a bullet list that someone's going to present on a PowerPoint presentation.

Another problem is when writing is that people don't use a primary reference. So instead of digging in and saying "well, mmhm this article cites this one, but I'm just going to cite this article because it's too much work to go and actually find this other article maybe it's even more than five years old and I have a hard time finding it". Actually, go track down the other article. Increasingly today, through the KTH library, you can actually track down the original article. Why is this so important? Well, in some cases, you may find that this other paper that referred to it actually was wrong, what it's saying be other original paper said is actually incorrect - it's not what they said. But if you cited and you use that to support your argument, then you may find out that, in fact, "oops! You're wrong" because the source that you quoted wasn't very authoritative, and therefore you don't actually have the supporting information you thought that you had. So look for the primary references.

Another problem is not using references within your text, in particular not referring to your own figures, tables, code examples, etc. So then you have a bunch of text going along, and suddenly there's a table there, but there is no reference to it! So how do I know which paragraph that it is relevant to? Where in your argument is that data important? So be sure to use explicit cross-references - as you write. And, of course, one of the worst mistakes you can make is not using your tools effectively - so learn to use your tools.

Slide 31: Some common mistakes: Figures

So as we talk about figures, one of the worst mistakes made with figures is using somebody else's figures (figure or figures), without the copyright owner's permission. And this simply isn't acceptable - it's unlawful! Now, of course, there are many authors today that are giving permission because they'll say, "Aha! I simply want to be cited for this - so I want it attributed to me in" In which case, you need to say in your caption that you have the author's permission because they use blah blah and you specify exactly what it is that the authors specified they want in their attribution. So typically, you're going to cite the source but also may say which particular Creative Commons (CC) variant it is. Now, another problem is failing to label the elements in the figure. So you have a figure with different parts in it, but

since you didn't put any names on them - the reader has no idea what is in your mind when you put that box, circle, squiggle, whatever into the figure.

Another problem that many people fail to use commonly used icons. For example, for the networking world, Cisco has made as a whole set of their icons available to anyone who wants to use them on the conditions that they not be changed. But they're free to use. So use this common set of icons if you're drawing a network diagram - it will save you lots of time and make it easier for the reader to understand what it is that you're referring to. Many companies have whole collections of icons, pictures, etc. because they [offer] coherency across the documentation they produce. So make sure you find out what the appropriate set of icons, figures, etc. for you to use in the setting where you're writing. Now as you're writing your caption you need to think about the fact that there are going to be some of your readers who in fact can't actually see the picture - because they're blind or they're driving a vehicle, or they're doing something else, and all they can do is hear the words from the caption (produced, for example, by a speech synthesis engine) so you should learn to write complete captions that describe everything that it is you want to convey by that figure in words in the caption. Now another problem from a visual point of view is choosing poor colors. The reason for this is that, of course, there are many users (such as myself) who are color blind. Therefore we won't be able to see the difference between this color line and that color line - it all looks the same to me - if they have the same intensity, I don't know which one you're talking about. So it is very useful if you use different stipple patterns or styles so that the reader who isn't able to see them in color is able to know which curves are which or which date is which. Another reason for doing this is the fact that, of course, in many cases, not all copies of the material will always be available in color. So many journals and many conferences only print the proceedings in black and white, and therefore if you relied on color for your figures to get your point across, the readers of your paper are not going to be able to see it.

Slide 32: Generating plots for in your document: gnuplot

Now, how can you generate figures well? One of the tools it's very useful for being able to generate figures is gnuplot. Why is gnuplot so useful well? To me, one of the major reasons is because it's both simple but because I can use the set terminal command to it to choose a whole variety of different outputs ranging from postscript to LaTeX to Framemaker MIF format, gif, X-11 windows, etc. "mmhm I can pop it up in the X11 window, play with things until I get the exact look that I want" and then I can say, "okay! the journal that I need wants the figure as a JPEG image" so I will put it out now in JPEG format. "Boom! I'm all set!" or I might output it in MIF format, bring it into my FrameMaker and now modify the fonts and styles to match the document that I'm producing. And it's a very simple process to do.

Slide 33: Network diagrams

I mentioned earlier, the system network topology icons that are freely available in a whole variety of different formats, and the URL is here in case you would like to use them.

Slide 34: More tools for charts, diagrams, etc.

There are loads and loads of different tools for being a group produce charts, diagrams, etc. from Microsoft Vizio to DIA to OpenOffice Draw or LibreOffice Draw to UML tools. So if you're writing programs, if you want to use uniform modeling language - use a tool that will help you. For showing circuits or board layouts, CadSoft has made their Eagle program available so that (yes) for small circuits - I can easily draw something using standard symbols, importing lots of the package designs and layouts, and voilà - I have something that both can be used to produce the circuit board that I want and can be used to illustrate what it is what I want in my document.

Slide 35: Tweaking or Making your own CSL Style

Now, if you're using Zotero, one of the problems that you may run into is that you need to match the particular style of the references which the journal or your instructor has said is the style you have to use. And I mentioned in a previous module; there is a Zotero style repository that has a very very large number of different styles in it. But you may need to actually modify it because your particular publication style might not yet be there. And you can read one of these references, such as Cornelis Pieters' "Quick Start Guide for Creating Zotero Citation Styles" or their guide to tweaking existing styles that are very close as it [might] only need some modifications.

Slide 36: Starting with IEEE style add URL, DOI, ISBN: CSL Style – Info section

But if we take a look at the style, in this case, I started with the IEEE style, and I said, "I simply want to add URLs, document identifiers, and ISBNs".

Slide 37: CSL Macros: isbn and access

So I went to the style file, and I started adding it I can see "aha" I put in macros for ISBNs and an access format.

Slide 38: More macros: edition and issued

I can now say, "Okay! Here are the macros to use for editions of the document or when issued".

Slide 39: Yet more macros: author, editor, locators, and title

There are macros for authors, editors, locators. titles, etc. and on and on and on.

Slide 40: And yet more macros! publisher, event, and page

But we can also see from the CSL file here's how the citation is going to be formatted.

Slide 41: Define format for citation(s)

So in this case, we can see up here - that we are going to use "et al." so we could see "Maguire et al." when there are more than a hundred authors (which might be the case for high energy physics paper) or your journal might say actually we want to use "et al." when they're three or more authors, so then you would just simply adjust this value to be three. And. voilà when you run the document through again with the new style sheet, and if there are three or more authors - it will automatically use the "et al." we also can specify what we want as a prefix and suffix if we want brackets, parentheses, etc.

Slide 42: Bibliography information: article-journal and paper-conference

And we can now see this annotated version this is where we use "et al." this is where we used the reference style that lists the author first inside each reference - so we specify it by this - so when the macro author gets run - we output the prefix, and there's the suffix - so that author will appear followed by a comma and a space. We can then, for each of the different styles of documents, we can say how they're to be formatted.

Slide 43: More bibliography: report, thesis, webpage, patent, book

And so we can see here examples for reports, theses, webpage, patents, books, etc.

Slide 44: Yet more bibliography styles

And there are loads of styles and

Slide 45: Open xx.csl file in Firefox

one of the useful things is that you can load the style and by simply loading that file - it'll ask you do you want to install it - you click yes, and off you go. A really useful thing to know is that if you're inside a tool like Firefox or chrome, you can say file:///tmp/test.csl or use the file menu command or control-O to open a file - so you can actually see what your style is going to look like.

Slide 46: Preview new format chrome://zotero/content/tools/cslpreview.xul

So in this case, for example, I use the chrome version, I said chrome://zotero/content/tools/cslpreview.xul

Slide 47: Preview new format chrome://zotero/content/tools/cslpreview.xul

Now I can see that in the style that I just loaded, here is some examples of how the citation format will appear, and here's how the references will appear from the collection of

references that I chose with the mouse from this middle window down below. I can, of course, now loaded my IEEE with access style and I can see: yes, in fact, I got the ISBNs, I got the document identifiers, and I even got URLs as I wanted!

Slide 48: Preview – compare with: IEEE, ACM SIG proceedings

I can also use this to compare them - so I can use preview. Say, "Ah! I want to see it IEEE format" it would look like this, or I want to see it in ACM special interest group proceedings with long author list format, and I can see it like this.

Slide 49: CSL format resources

And you can read more about the CSL formats in several other documents. So you don't have to worry about the fact that "mmhm, I don't have the exact style for what I need the journal says I need to have this particular style" - Make it! It's not that much work to learn how to do.

Slide 50: When using LaTeX

Now, if you really like to use tools like LaTeX, so when you're using LaTeX, it's important to make sure that you specify the right size of paper - because, of course, depending upon where you are - there are different sizes {of paper]. Now, one of the things I particularly like to do in LaTeX is to change the fonts to use the generic postscript set of fonts. And the reason for this is that they show up much better on the screen if someone views it with a PDF viewer. Now, why is that so important? Well, if I'm looking for reference and I look at several different documents, and one of them is set using the normal LaTeX fonts, and when I look at it on the screen - it looks horrible, it's hard to read - and what happens, I say, "Okay! I'm going to have to print it out and look at it later, which usually means it doesn't get read!" But if it comes up and it's nice and readable because it uses these postscript fonts that are well-tuned to screens, it's both nice on the screen and when printed, [then] it's more likely I spend the time to read it. Which means that the author is more likely to get the citation then the author who set it using funds such that it wasn't really readable for me. Now, a particular pet peeve I have is hyphenation- Lots of people use the default in LaTeX, and the result is they end up (particularly when they're set multiple column layout) with hyphens everywhere.

Sometimes hyphens in places where they really shouldn't be - because they didn't think about the fact that this particular name they used was actually being treated like a word in the language that they're currently setting their text in. And therefore, it ends up getting split - when it really should have appeared because it was actually the token or name a particular grammar. So I encourage you to turn off the hyphenation or at least limit its use by raising the hyphenation penalty and raising your tolerance. Now, if you're using LaTeX, it's very common to use BibTeX for your references, and today it's possible to get BibTeX for all the World Wide Web Consortium (W3C) publications. It is possible to get the BibTeX for Internet Engineering Task Force Request for Comments (RFCs) and therefore don't struggle - use the tools - import the BibTeX to have a nice uniform set of references. It will save you lots of work. Now speaking of saving a lot of work, there are wonderful packages available in

LaTeX, so for example, if you're going to do a Byfield you're laying out the format for one particular packet looks like, use the bytefield package - it makes it really really easy to draw packet structures.

Slide 51: Helpful for LaTeX

And there are plenty of other very useful packages. Some of them are listed here, for captions, color tables, multiple row tables, etc. Another thing that is useful is being able to draw your figures in a vector format such as SVG, hence tools like Inkscape, etc. are available to do this. The advantage is now when you imported it into your LaTeX as encapsulated postscript format or EPS; it is now scalable - so it looks fine on the screen, and it will look nice when it's printed. They are also tools to be able to generate a plot like the graphics layout engine (GLE), and they're even tools that will help you by formatting your source code like minted and the figments library. So that the keywords are going to be highlighted using a package like minted and you can read about that and make use of it-

Slide 52: Oral presentations

So enough about written presentations, let's say a few things about oral presentations.

Slide 53: Three parts to a (typical) speech

When you're giving a speech, typically it has a beginning - the introduction - and the saying goes: "Tell them what you're going to say". I often think of this as the executive summary, for the person who is a high-level executive. When they are listening to your presentation, there's probably only one thing they remember aside from your name and the title, and that's what you give them on the second slide as the executive summary. The next part is the body of your speech. That is where you actually tell them what it is that you want to convey to them. And then finally we end with the conclusion - where, in fact, what do you do we tell them what you just told them. The summary of what. Why do we use that structure? Well, in fact, if you talk to people following a presentation, you will find there are typically two things they remember: the beginning and the end. That is why it's so important to have that second slide of the executive version because they stopped listening after that. And the conclusion is for people who did follow along. But what is the takeaway? Well, it is you wanted them to do - and that is usually summarized by your conclusions. But if you get them at the beginning and get them interested, then they are much more likely to actually follow you along through the body of your speech and to make it to the conclusion. So hopefully, with those three parts, you'll produce wonderful presentations.

Slide 54: Alternative version of the conclusion

Now, there's an alternative way of thinking about the conclusion. And that is you can think about "Aha! I'm just going to summarize my key result." But in addition to that summary, I'm going to say: what's my call to action - explicitly tell my audience what they want them to do. Right. Then it's very clear - this is the protocol to use - you should replace your use of

HTTP with QUIC or whatever it is that is the action you want them to take - if they believe your conclusion.

Slide 55: Stephen Kosslyn's cognitive principles

Now, Stephen Kosslyn has written what he calls his cognitive principles. He says, "Go for the big difference" - do not be subtle. Don't be talking about small little things. And he says to follow the "Goldilocks Rule" - no more than four perceptual units per slide. He also goes on to say you want to "Signpost changes in information". And Bob Grant in his "Pimp your PowerPoint" has said this use of signpost is really important because you're signaling _this is the important thing_ - _this is the concept I want to get across_. Make it apparent to the reader.

Slide 56: General presentation tips: Preparation (adapted from S. J. Bell)

Now, Steven Bell, in a set of presentation tips - says that it's important both to prepare yourself and the presentation. That means you need to know your audience, but you also need to know yourself. Think of that structure of the introduction, body, and contents, and possibly for many research talks, you will have a future work: Here the next obvious things that I plan to do or someone else should do. And then practice three to six times. Focus on the key ideas, rather than the exact wording. But plan your timing - particularly if you have to meet a particular time schedule. It is also important to know the logistics. Know what room you're going to be in. Know what the room is like. Know how to work the equipment in the room. And, of course, wear the appropriate clothing. Use the relevant examples to your audience, use the right keywords, use the keywords that are going to be meaningful to them, and you'll be more successful in communicating with them.

Slide 57: General presentation tips: Giving the presentation (adapted from S. J. Bell and personal experience)

Now, he goes on further to give some general presentation tips, and one of the first of these is: Take the stage. You need to be yourself, follow your own style. You need to be confident, and you need to be relaxed because after all if you don't know what it is that you're going to say, you don't know what it is you're trying to communicate - your audience certainly doesn't! So it's also important to remember to start and end on time, both for yourself and to be fair to others. Look into your audience. Look into their eyes. Are they starting the nod off? If so, maybe you need something to stir them up a little bit.

Look at the pacing and look and see whether they're understanding. If they're not understanding, then think of another way of phrasing - in another way that is more likely that they are going to be able to understand what it is that you are going to communicate. Engage your audience. Then, of course, it comes to the matter of questions. Are you going to take questions in the middle of your presentation - in which case, be clear – "if you have a question, raise your hand, don't be afraid of interrupting me". Or you might want to just say,

"No. Hold your questions to the end, and then we'll have a question-answer session at the end". It is also very important in large rooms to repeat the question because people won't be able to hear what the questioner asked - particularly in the back of the room if the person who asked the question is very close to you. It's also very important to know the words and say them: "I don't know" You don't know the answer to everything, but if you admit when you don't know, it's more likely your audience is going to believe you. But it's also important to be able to say, "I don't know, but I can find out", and then you go and find out, and you get back to them with the information to answer their questions. It's also important to recognize when you should really defer detailed questions - sometimes, you will get questions that may be argumentative or really outside the point - to further the afterward. Then you can privately talk to the person, answer their questions, or deal with it in some other manner. So don't be afraid to say, "I don't know", but as I tell doctoral students before their defense that shouldn't be their answer to every question!

Slide 58: Michael Alley, The Craft of Scientific Presentations: Critical Steps to Succeed and Critical Errors to Avoid [Alley2003]

Now, Michael Alley, in "The Craft of Scientific Presentations", says the key errors to avoid are: Giving the wrong speech, the number one mistake. Right. You prepared it for a different audience. You use the wrong set of words - it's an impedance mismatch you're not going to communicate with this audience - so make sure you give the correct speech. Because number two: if you chose the wrong words, as he says "from the wrong well", i.e., there not the vocabulary that this audience is going to understand - you also failed to communicate. The third, he says, is leaving the audience at the dock. They are there; you took off, you went off - they were left behind. Or use so much information that there is no hope - they are overwhelmed with the flood of information they are lost at sea. If you have slides that you can't read the text of, at this stage, is pretty clear it's unlikely your audience can read them. It means probably (yes) toss them out or expect that they're really going to be handouts, and then people will be able to see that material. Don't show things that people are not going to remember. You want it to be memorable. And, of course, a big mistake is to ignore Murphy's Law: Things always go wrong. So, in general, it means that I like to have an extra back up not only on my laptop but on a flash drive or on a server so that I can download it if there's a problem on to someone else's computer, etc. Another mistake is not preparing enough. It is your presentation - the audience, however, is using their valuable time to attend - so you want to make their attendance worthwhile. Pay attention, both yourself and to the room, the timing, what other things are going on, you don't want to run late into lunch, you don't want to take the next speaker's time. Be very very careful and, of course, it's very important that you never lose your composure - you want to be able to stay calm, you want to stay organized, and you want to make a clear presentation - both to be successful in communicating and so as not to make a fool of yourself, as they say, once again!

Slide 59: Your slides should

So that means one of the first things you should have on your first slide is who you are and where you're from. You want everyone that attends to be able to remember: Who was it that presented? And where are they from? I suggest you always include the date of the presentation, because again you may have different versions of this talk which you give at different places or give to different audiences. You want to be able to tell them apart. Include slide numbers; this is particularly useful when people are taking notes - so they can say "on slide four when you were referring blah blah blah". Now, it's easy in a tool like PowerPoint, you can just enter "4", then hit the return key, and it takes you to the right to slide "4" without messing around - you are there. As I mentioned earlier, there's a problem about color blindness. About 1 in 20 men are color blind, and about 1 in 200 women are color blind. So don't leave these people out. Avoid really long lists, unless you're going to say here are the key points - the rest you can read later and copies of the slides will be available at blah blah blah. Don't go through long lists. And try to use relevant text, images, pictures, etc. After all, you want to try to communicate to _this_ audience that you're communicating with _not_ with some other audience, because you're not going to be effective in your communications.

Slide 60: Your slides should have a sentence headline.

Now, Michael Alley and Kathryn Neeley have done a very fascinating set of presentations, which has now changed the way that Penn State University's Engineering presentations were done. And their approach is to say, "use a sentence as a headline", and it seems counter-intuitive most of us usually write only a few words, but they said you should actually write your sentence. Make it clear it's a headline. It not only identifies the topic, but it now typically lets you state an assertation "the moon is made of blue cheese" it is an assertion. And now, this slide talks about the measurements that you made of the moon and why you believe it's made of blue cheese. Another advantage is the sentence really clarifies the role of the slide. And that's very useful - because a wonderful way of getting a feel for what your presentation is like - is opening a slide sorter view in the case of Microsoft PowerPoint. Because now: What is it that you can see? You can just really make out the general shape of the things on the slides, but you can typically read the headlines. So now you can sit there and say, "Oh! Actually, I should present this in front of that", and now you just move it around, and you have sorted it into the optimal order for the presentation that you want to make now. And the third reason they say is making your headline as a sentence clarifies the main purpose of this particular slide. Because if this slide doesn't have a purpose in your presentation, then the best thing you can do is remove it. So again, when you're reviewing it be thinking of not only doesn't fit here; it doesn't fit all, and [then] get rid of it. A common thing to do, however, is not really get rid of it completely - but put it after your questions slide - so should the question come up on that specific topic will you go right to it and you can say, "as you can see" and now it's very clear that you're very well prepared for your presentation because you've already prepared many of the responses to the questions that you're going to get.

Slide 61: Assertion-Evidence model of slide

Now another approach that Michael Alley suggested is the so-called assertion-evidence model of a slide. So we have the headline, he said, which was a sentence that makes an assertion. And now the body of the slide presents the evidence: an image, a graph, equations, a video clip, whatever. And this is particularly effective in engineering presentations. Where you can say, "the strength of the material is: silicon is better than silicon germanium for blah" here is my evidence: here is the microphotograph, here's the aging or temperature specs. Now the nice thing about this is that it makes a nice story and gives you because of this relationship between the assertion and the evidence exactly what you need for your paper and what you need if you're making a poster of your presentation.

Slide 62: Storytell model of presentations

Now Cliff Atkinson, in this book "Beyond bullet points: using Microsoft PowerPoint to create presentations that inform, motivate, and inspire", takes the storytelling model of presentation, and that is, you actually write the script. Use a storyboard, just as if you were composing a story for a book or a film or something like that. And this is again where that slide sorter view is so important - because now I can use it to actually implement my storyboard. So that I can plan it rearrange it, think of the alternatives - This is a different - perhaps it's a better way of telling the story that I want. And now, of course, you can actually produce your script, so that you're going to engage your audience. Because you've learned how to pace the particular presentation that you want, you learn how to build in the flow that you would like to have.

Slide 63: Cliff Atkinson's three analsys questions

Now he says there are three analysis questions to ask. The first is in the slide sorter view - can you understand the focus just from the slide titles. And as I said earlier, if you can't, then probably there's something wrong with the story you're trying to tell, or you have the wrong titles, or perhaps you have the wrong slides altogether. Then he says in the notes field is there a balance between what I say in my notes and what I say in the slide and lots of people (and I'm one of them) put too much text on the slide and not enough in the notes. And that may, in fact, for a particular audience be the wrong balance - because if I'm handing out the notes, then maybe I can remove some of those details to make the slide easier to follow and easier for the reader to understand and the listener to understaffed. And then, of course, in the normal slide - the question is going to be "will the audience find each slide interesting" - if they don't, you should be asking yourself: Is there a better slide that I could put here? Is there a better illustration? Is there a better figure? Is there a better way of showing what it is what I want to communicate? So by taking these three different viewpoints into consideration, I think that you'll find that you produce better presentations.

Slide 64: Public speaking

Now, for many people, public speaking is one of the most frightening things that they can imagine doing. In fact, what they really want to do is avoid doing it. Unfortunately, in many cases you're going to have to do it. And I say, unfortunately, because I'm actually one of those people who for very long time was actually terrified of public speaking. In fact, I had to go to special classes to actually learn to speak. And that took me a period of time and so not surprisingly speaking in public was actually a very, very frightening experience. But the are a number of books available to help you improve your public speaking. But from my own experience, I can say one of the most important ways of doing it is practice - practice, practice, and practice. And it only took me about twenty years to manage not to get physically ill before teaching a new class for the first time. Because I finally learned to accept the fact that each class is different, and you have to understand that it's going to take you a while to understand what are the things that motivate this particular class or this particular audience. But with practice, hopefully, you'll be successful at it.

Slide 65: Oral presentation tools

Now, there are a variety of oral presentation tools that you can use with mention PowerPoint. If you're using LaTeX, there's a Beamer library. OpenOffice has an Impress file. For many many years, I produced slides using Adobe Framemaker. But typically, what you're going to use is your laptop or the conference's computer connected to a projector. Make sure you know how they work together. If you have a wireless presentation tool, like the one that I have here to be able to control your slides - it makes it much easier because you can move around to different places, and you can easily press the button to change the slide to go forward or backward. It is also very useful having a laser pointer. So I can use the laser pointer to point at the particular thing that I want to emphasize. And this is particularly important if you want to point out very specific details in images or figures or plots. So no matter what tool you're going to use, learn to use it!

Slide 66: No matter what tool you use for *oral presentations*, learn to use it

Now a fundamental thing that you know that I'm very lazy and seek to be very lazy and that's why I like using tools. So in terms of presentations, I try to think in terms of the cost the formula uses the number of people in the audience times the average cost per minute because they have some costs associated with them typically even with overheads times the number of minutes that's what my presentation costs. Then I better make sure that the value of what I'm communicating is greater than that because otherwise, the organization that I'm presenting to or the audience that I'm presenting to has just lost out by participating in the presentation. And if you value your own time, you'll learn to use your tools well. And in the long run, you'll save a lot of time and, of course, as I mentioned before, avoid looking dumb. Don't hurt your choice with a poor choice of tools. Learn how they work. One of the worst things to ever see is presenters getting up at a conference who aren't able to make the computer work with the projector. The result is they really look dumb. Don't be one of those people! Make

sure if there's a question that you try it out beforehand. Or one of the best things at meetings is to make sure that all the presentations are on one particular person's computer - because now you don't have to waste all that time switching from computer to computer, figuring out why it doesn't work. Again value your time and value the time of others.

Slide 67: Microsoft's PowerPoint: "power user" presentation short cuts

So if you're going to use Microsoft PowerPoint, the first thing to know is that there are some single key that will really help you out. So, for example, you might want to know if you need help, you can hit F1. Or to start your presentation from the beginning, all you have to do is hit F5. But if you want to start on a particular slide that you're currently out and don't want to start at the beginning, you can hit shift-F5, and voilà you continue from there. And they're a bunch of other single-letter commands or character strokes that are really important, if you're going to be using this tool frequently for your presentations.

Slide 68: Media shorts cuts during a presentation

Now, if you're using media, it is also useful to learn the shortcuts for being able to start/stop/pause and increase the volume, etc. of the media you want to play.

Slide 69: Microsoft's PowerPoint: "power user" preparation/writing short cuts

Now, if you're doing PowerPoint presentations, it's also useful to learn some of the short cuts to be able to, for instance, sent the text to bold with control-B or set it italics with control-I, etc. Centering, change font size, etc. But again, it's about learning to use those portions of the tool and learning to use the tool to accomplish what you want to accomplish in an efficient manner.

Slide 70: Adobe Acroread: Why use it?

Now in many cases, the common mode of outputting presentations and providing handouts to others or, in many cases, to give the presentation itself is Adobe PDF. And therefore, you might say, "mmhm! Why would that be the standard mode". Well, the reason is up the recently Adobe Acrobat was almost uniformly available on every platform that was around. So if you had a PDF version of your presentation, you could just be handed to the organization, they can put it in, and you're going to be able to view it. But another more important reason for doing it is the fact that the fonts (if they're included in the presentation) will come out as they should be. Whereas, if you haven't included the fonts and you switch to another platform, then you may find that the characters that are actually presented there are not the ones that you thought when you were doing your presentation. So be sure to include the fonts, particularly if they are unusual fonts. But another reason for putting presentations

into PDF format is because they're easy to print and easy to show. Why do you want to do this? Because you want your presentation to spread as widely as possible.

Slide 71: Adobe Acroread X: "power user" presentation short cuts

Now, if you're going to use Adobe Acrobat to show your presentation - it's useful to know again some of the shortcuts. Things like control-l or F11, which will bring up the presentation in full-screen mode. You don't need to hunt around for an icon and poke it, and you can just say control-l. And there are zoom functions, etc.

Slide 72: Adobe Acroread: "power user" preparation/writing short cuts

Now, Michael Dakan, "Start the Show: Creating presentations with Acrobat 7.0 Professional", and lots of other publications will give you some tools about how and can you help produce your presentation so that you can have the slide transitions that you want. It has all kinds of very fancy features. So it isn't just necessarily equivalent to flipping pages of a slide.

Slide 73: LaTeX Beamer: "power user" preparation/writing short cuts

If you're using LaTeX Beamer, the are library classes for this. You can get them and use them. Learn how to make it work for you.

Slide 74: Presenting information with images

But as the popular saying goes, "a picture is worth a thousand words". So learning how to draw pictures or learning how to select pictures which other people have drawn and that they have allowed you to use - is **wonderfully powerful**. And if you wonder just how powerful an image is - think of how much information is contained in a week at a party. So find the right graphical form, and you again improve your ability to communicate.

Slide 75: IguanaTex: Latex Add-In for PowerPoint

Now one of my favorite tools for doing this is IguanaTex, a nice tool that you can get from this URL, which lets you write LaTeX equations or other things in LaTeX and include them into a PowerPoint slide. So, in this case, I was able to create this question from the LaTeX on the left-hand side and include it in the PowerPoint of this particular slide. It's easy. It's fun to use, and in particular, if you're going to show a lot of mathematics, it works wonderfully.

Slide 76: Edward Tufte's books

Now for those of you who are really interested in visual communication, I encourage you to read Edward Tufte's books. He is one of the best people in teaching you how to visually communicate, ranging from his 2006 "Beautiful Evidence" to "Envisioning Information" and

early book "Visual Explanations: Images and Quantities, Evidence and Narrative". So if you go to this website (http://www.edwardtufte.com/tufte/index) you can find more information about these books. He has had a very big influence on how people present information.

Slide 77: PowerPoint

Now one of the things that he's not a big fan of is PowerPoint, and he actually wrote a very nice article called "The cognitive style of PowerPoint: pitching out corrupts within". And I encourage you again to learn how to make the most use of your tool to help you communicate.

Slide 78: Steven J. Bell's suggestions

Now Steve Bell, who referred to a number of times previously, says, "Go live or simulated". He says, take advantage of the increasing broadband connectivity - actually go your source - give a demo - it's more dynamic, more engaging for your audience; however, we also have to think about a backup plan because things might not work - then you look like an idiot - you waste a lot of people's time - so a common thing will be to have both the live version prepared and the backup ready- So you can show the still pictures from your doing it in non-real-time or the demo version if everything works. If you have to use PowerPoint, then try to minimize the number of your slides. Many people say no more than ten per hour. My upper limit, I generally set, is about one per minute, and that's a very very large number of slides. Avoid overutilizing your templates; don't make everything look all the same. And many people suggest that you don't pass out handouts of your talk beforehand, because then everybody will be focusing on the handout, instead of listening to what you're saying. Instead, Steve bell suggests you distribute the handouts afterward, or you give the URL from where people can download them later - and now they have a backup following having heard you say what it is that you wanted to say in your presentation.

Slide 79: Shyam Pillai's LiveWeb (http://skp.mvps.org/liveweb.htm)

Now, it is possible to put web pages into a PowerPoint presentation and there's a tool here called Live Web - if you want to do that.

Slide 80: Making better presentations

There's a number of books, like Ron Galloway, "Rethinking Powerpoint" and Nancy Duarte's "slide:ology" that come to mind about how to make better presentations. So if you're going to be giving a lot of presentations - well, you might as well learn how to do that well!

Slide 81: Posters

Now a particular type of presentation that you may have to do and is very common in academic settings is posters.

Slide 82: Poster presentations

And posters are particularly interesting and quite fun. Why? Because they give you a chance to talk one-on-one with the people that you want to communicate with or a small group of people as they gather around your poster. So you have the base material that you want to refer to on your poster, but you can supplement it by what it is that you can orally say to the people who are gathered who have some interesting your poster. Now, typically, posters of the size so such as A0, so that's roughly one square meter. But posters may also be other sizes, and you should check with your meeting what the poster size is that they're going to use. Now, what is important on every poster? Once again, you want your title, the authors' affiliations, you want the abstract, the body with its introduction, methods, materials, results, and conclusions, and you want your references. But the nice thing is you also have room on your poster to be able to show pictures, plots, tables, etc. Many people like to include their organization's logos or an association's logo on the slide, but you need to check your organization's rules if you're going to use logos. So, for example, in a poster that I was going with some colleagues from the Karolinska Institute and the Karolinska University Hospital, there was an agreed-upon layout of those three logos for KTH, KI, and the hospital - which order they were to appear, where they were to be placed, the sizes of them, etc. And as an employee of an organization, that's something you need to think about when you're laying out your poster. A common way of laying out your posters, of course, is to actually create a sheet, for instance, in PowerPoint that is an A0 sized page. And start laying the material out. Or lay it out in a smaller format and then scale it up.

Slide 83: Further pointers regarding posters

So LiLynn Graves, in a presentation and document on scientific poster design, says, how you can keep your poster from looking like an abstract painting where you don't know why these pieces are here. You want to plan where they are. Now, if you are a faculty member or employee of KTH, there is even a poster template that you can download to use. But if you are **not** employed by KTH, then you *shouldn't*, of course, use that template.

Slide 84: Read, then edit, revise, and/or rewrite

But in general: What do you want to do? You want to read, edit, revise, and or rewrite. So unless you're lucky enough to have the skills of Wolfgang Amadeus Mozart or George Gamow, you probably need to read, edit, revise, and rewrite many many times. But it's also useful to get feedback from other people. Why? Because they give you a fresh set of eyes. Because sometimes you've gotten very tunnel-vision - you know what's in your mind - so even though you attempt to read it - in the back of your mind is what you were thinking of. Unfortunately, you didn't communicate in the paper or orally or on your poster. The more constrained your presentation is in terms of page limits, presentation time, poster requirements, etc. the longer it's going to take you to present a high-quality paper, talk, or poster. Why? Because each of these constraints will cause you to have to make particular decisions as you decide what words to use, how to lay things out while still accomplishing the goal that you want to have, which is to communicate.

Slide 85: Conclusions

So the conclusion is, of course, it's important to be your own best critic. Reflect on your writing and try to identify what you did well and what you didn't do well - so the next time you're going to get better, and this is this metathinking - thinking about what it is you're thinking about. Learn from others and be open to constructive criticism and, of course, help others - as they say, pay it forward. Good luck with your presentations.

Slide 86: References

There are additional references that you can read about these. And I look forward to hearing your presentations over your careers.