



# Scientific Posters

introduction

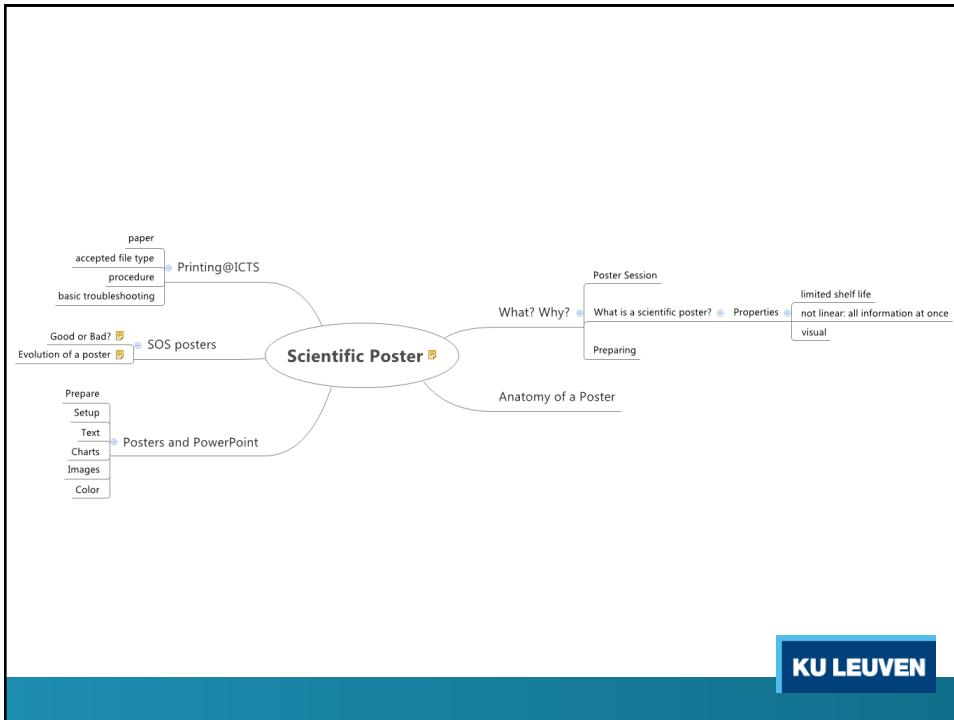


## Objectives

- Create posters that are:
  - Readable
  - Informative
- Use PowerPoint to create them
- Get them printed

*A good poster can't make up for bad research,  
but a bad poster can make good research hard to recognize!*

[www.waspacegrant.org/for\\_students/student\\_internships/wsgc\\_internships/posterdesign.html](http://www.waspacegrant.org/for_students/student_internships/wsgc_internships/posterdesign.html)



## Poster session?

- Definition educause (<http://www.educause.edu/>):  
*Poster sessions are **informal, drop-in sessions** that allow presenters to share their (campus) experiences with colleagues on a **one-to-one** basis. Poster presenters should be prepared to provide a **brief verbal explanation** of their experiences or applications that may be illustrated through a set of **visuals** attached to a large bulletin board or via laptops/screens, etc*
- Other important elements:
  - **Location**
  - **Poster stand**

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## Poster session: goal

- Share research (results, idea, ...)
- Stimulate discussion on a research topic
- Feedback on research
- Networking



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## Poster session: location



## Scientific poster?

Large, visual, synchronous presentation medium

- **Large:** to be viewed from a distance
- **Visual communication:**
  - Source of information
    - Legible
    - Comprehensible (even without extra explanation)
    - Concise
    - Organized
    - Has something to say
  - Is a picture of your research at a certain stage  
Summary of a project, specific expertise, ...
- **Synchronous:**
  - all the information is viewed at once
  - Scan from title to conclusions

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## Scientific poster?

- **Draw attention**
  - Ad for a project, research, ...
  - 11 sec to capture the attention
- **Communicate effectively**
  - Audience is walking (talking, eating, ..)
  - Will be photographed
- **Initiate:**
  - Discussion/conversation  
has useful information to point to during conversation
  - Networking
- Is hybrid form of communication
  - Not a paper
  - Not an oral presentation

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# Scientific Posters

The elements



## Content

- Planning
- What should be on a scientific poster?

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# Planning



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## Scientific poster: planning (ideal world)

- Provide enough time
  - Do not postpone to the last minute
  - Murphy will be there...
- Get colleagues / friends / family to check / brainstorm the poster

- Poster presentation
- 1 week: print final poster
  - 2 weeks:
    - 2<sup>nd</sup> draft
    - Check with advisor
  - 3 weeks:
    - 1<sup>st</sup> draft
    - Review-Review-Review; give it a rest
  - 4 weeks:
    - List *must have* and *leave out*
    - Layout design

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# Scientific poster: planning

- **READ THE INSTRUCTIONS**
  - Dimensions
    - 1 large poster
    - individual A4 pages
  - Specification: dimension images, portrait/landscape, font, numbering poster, ....
  - Additional requirements?  
Tape, pushpin, ...
- Check *Judging criteria*
- Try to get as much information on the poster session as possible

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The screenshot shows the SLAS2013 website interface. At the top, there's a purple header with the text "slas 2013 2nd annual CONFERENCE & EXHIBITION". To the right of the header are links for "SLAS Home", "Conference Home", and a green "Register Now" button. Below the header, a navigation bar includes links for "Conference", "Program", "Exhibition", "For Exhibitors", "For Presenters", "Sponsors", "Awards", "For Media", and "Contact Us". The main content area features a large banner with the text "For Presenters" over a background image of a scientific visualization. Under this banner, there's a section titled "Poster Presentations" with the following text:  
 Presenting a poster at SLAS2013 is an effective way for participants to communicate their research to their colleagues and is often the "presentation method of choice" for many scientists.  
 Abstracts for presentation consideration at SLAS2013 are no longer being accepted. Please watch for details regarding SLAS2014 abstract submission in Spring 2013!

**Deadlines for Submission:**

Friday, October 26: To Be Included in the Printed Final Program  
 Monday, December 31: Final Submission Deadline

Please note that a final schedule of poster presentations including poster abstract and poster images is available within the SLAS2013 Poster Gallery. [Click here](#) to view poster presentation details.

**Poster Presentation Guidelines:**

Poster Sessions are scheduled for Monday, January 14 and Tuesday, January 15 in the SLAS2013 Exhibit Hall from 1-3 pm. Posters may be displayed for the duration of exhibition hours on both Monday and Tuesday. Poster presenters will be assigned a poster presentation date upon acceptance of their submitted abstract.

Presenters must be present for the duration of their scheduled poster presentation session to "present" their poster content. However, SLAS encourages poster presenters to display their posters for the duration of exhibit hall hours on both exhibition dates (Monday, January 14 and Tuesday, January 15).

\* Poster Set-Up:  
 Any time after 10 am (on Monday, January 14)  
 NO LATER THAN NOON

## Judging Criteria for Poster Presentation

- First Impression:
  - How difficult is it to read the poster?
  - How are colour schemes used, are they easy on the eye?
  - How crowded is the poster?
  - Is there a good flow of information (logical, layout of information)?
  - Does the poster stimulate interest and discussion?
- Layout:
  - Is the poster visually jumbled?
  - How easy is it to follow the sequence in the poster?
- Readability:
  - Is font size or style easily readable?
  - How much text does the poster contain?
  - Are there many grammar or spelling mistakes?
- Title:
  - How specific/adequate/long/short is the title?
- Identification:
  - Can the author(s) be easily identified?
  - Is contact information available (ie. Department/ University)
- Aims/ Objectives:
  - Are they clearly stated?
- Methods:
  - How detailed, appropriate, original are the methods and is there enough explanation?
- Results:
  - How clear and well labelled are graphs and figures?
  - How complex are graphs?
  - How well are the results presented?
- Conclusions:
  - Are any conclusions presented and if so do they reflect the aims and are they supported by the data?
  - Is there a memorable “take-home” message?
- Scientific content:
  - Was the research put into broader context/ justification for research?
  - Was the content suitable for experts and non-experts alike?
  - Was there sufficient scientific explanation?
- Student:
  - How much do the student's explanations demonstrate knowledge/ ownership of his/her work?

([www.ncl.ac.uk/fms/postgrad](http://www.ncl.ac.uk/fms/postgrad))



## Scientific poster: planning

- Audience?
  - Who is my audience?
    - Colleague competitor
    - Colleagues from the same domain
    - Colleagues outside domain
  - What does the audience know about my research?
  - What does the audience want to know about my research
- Make a storyboard
  - What is the message that I want the audience to remember?
  - What is the logical order to bring the message?



## Scientific poster: planning

- Start from scratch
  - Do not make a summary of a paper
  - Do not start from an existing presentation / slideshow
- Make a clear choice on the essentials :
  - What problem(s) are tackled? (Objectives)
  - Why is this important? (Background)
  - How did I do it? (Methods)
  - What are the results? (Results)
  - What is the conclusion(s), implication(s)? (Conclusion)

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## Focus

What do you want to say, what is the message? What is the approach?

- History: how XYZ got to here
- Summary: an overview of XYZ
- Enlightenment: you might not know XYZ exists, but here's how it does
- Opportunity: you might think XYZ isn't possible, but here's why it is
- Fear: you might think XYZ is OK, but here's why it's not
- Soothing: you might think XYZ is not OK, but here's why it is
- Humor: you might think penguins would make terrible  
quarterbacks – and you're absolutely right

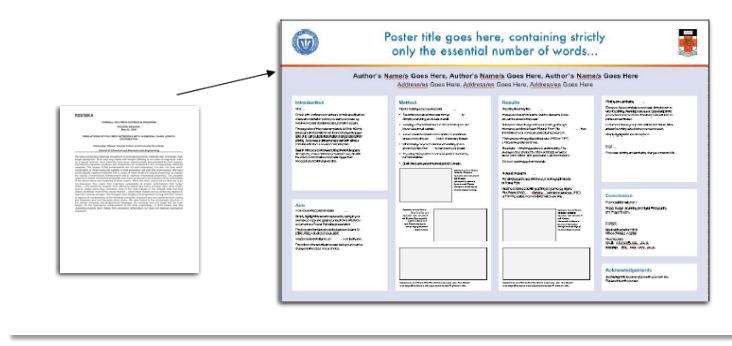
Taken from IT Services Oxford University: Presentations: Creating conference posters using PowerPoint

<http://www.creativeblog.com/design/10-steps-creating-perfect-infographic-4135672>

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## Scientific poster: planning

- Poster = illustrated abstract
- LESS IS BEST – LESS IS MORE



<http://www.cns.cornell.edu/documents/ScientificPosters.pdf>

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## Review, review, review: content

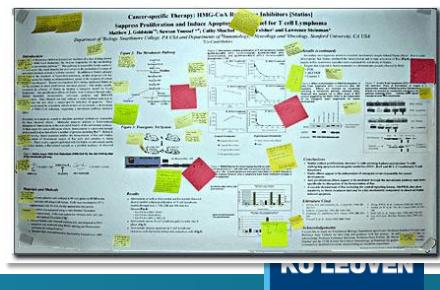
Critique from colleagues / outsiders

- Is the poster audience friendly?  
Is the poster suited for the audience?
- Is title short and powerful, a reflection of the research?
- Do the objectives correspond with the content of the poster?
- Are the methods used well explained, understandable? Do they correspond with the conclusions/objectives?
- Are the conclusions strong enough?
- Is the language used clear, free of any jargon?



## Review, review, review: format

- Are the dimensions / shape correct?
- Is it readable from a distance (2-5 meter)?
- Is the layout ok, not too messy, consistent?
- Typos? Spell check!
- Other errors?



## elements



20% Text,  
40% Graphics,  
40% Empty Space

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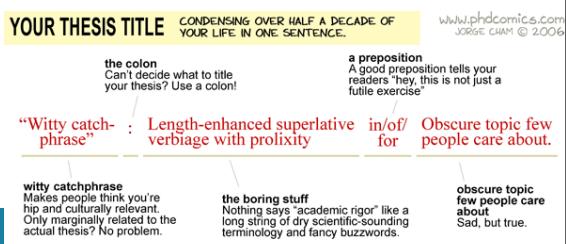
## Elements

- Title
- Author(s) + affiliation
- Abstract/Introduction
- Method(s)
- Data/results
- Conclusion(s)
- References
- Acknowledgements

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## Element: title

- Must be very interesting (provocative...)
- Audience must be tempted from a distance
- Visible and readable at 5 m
- Concise
  - If too long, make it shorter, reformulate
  - Do not decrease the font size
  - Avoid the use of ‘:’

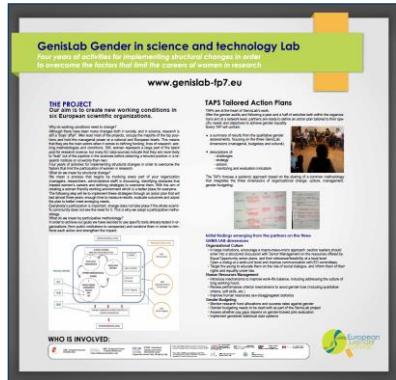


## Element: title

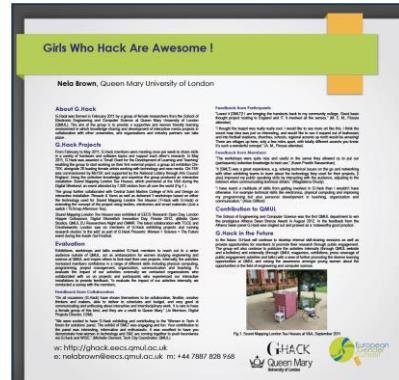
- Idea: the title should be the simple answer to the main issue that your poster addresses  
[www.lisabmarshall.com/uncategorized/sample-scientific-posters/](http://www.lisabmarshall.com/uncategorized/sample-scientific-posters/)
- Compare:
  - "A Study of Automobile Emissions Generated at Drive Up Windows"*
  - "5% of Air Pollution Derives from Cars Idling at Drive Up Windows"*
  - "5% of Air Pollution from Idling at Drive Up Windows"*
  - "Drivers Spend an Average of 7.2 Minutes Idling at Drive Up Windows"*
  - "Drive Up Windows pollute and frustrate"*

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## Element: title



[www.epostersonline.com/egs2012/?q=poster/egs2012036009b](http://www.epostersonline.com/egs2012/?q=poster/egs2012036009b)



<http://www.epostersonline.com/egs2012/?q=poster/egs2012070019>

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## Element: authors/affiliation

- Write the first name in full
  - Initials and titles are not needed
  - A photo of the person who is presenting the poster, or highlight / underline the name
  - Check with advisor on the order of the collaborators
- Do not forget the affiliation

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**FIRST ATTEMPT TO GENERATE AGE-SPECIFIC 3D-GEOMETRICAL DATA, BONE DENSITY AND BONE THICKNESS OF THE DEVELOPING SKULL  
A pilot study**

H.Delye, M.D., Ph.D.<sup>1</sup>, T.Clijmans, Ir.<sup>2</sup>, J.Vander Sloten, Ir., Ph.D.<sup>2</sup>, J.Goffin, M.D., Ph.D.<sup>3</sup>  
<sup>1</sup>Department of Neurosurgery, University Medical Centre St Radboud, Nijmegen, The Netherlands; <sup>2</sup>Division of Biomechanics and Engineering Design (BMGO), K.U Leuven, Leuven, Belgium;  
<sup>3</sup>Division of Experimental Neurosurgery & Neuroanatomy, K.U. Leuven, Leuven, Belgium

**Abstract**  
 It is well known that the human skull during childhood, most prominent even before birth, undergoes significant changes. During childhood, these isolated skull bone plate along the sutures, forming a lot of plates. These plates are called sutural plates. These plates try to define the appropriate correct material for the development, shield in case of injury. These models try to define the appropriate correct material for the development, shield in case of injury.

**Objectives**  
 This study aimed at creating a set of 3D-geometrical data of the skull during the development of a child. This will help to define the definition of surgical goals for e.g. cranio-synostosis.

**Materials & Methods**  
 We conducted a retrospective study (n=20) using a 3D surface model.

**Results**  
 The processing included automatic geometric analysis of the coronal as well as the sagittal plane. The results were compared with the results of the 3D surface model. The results showed that the 3D surface model was able to provide accurate data of the skull.

**Conclusion**  
 To our knowledge, we are the first to provide accurate data on 2D and 3D measurements. This will help to define the surgical goals for e.g. cranio-synostosis.

**How to structure and write a scientific paper  
for submission to international peer review science journals?**

**"ONE DAY COURSE"**

**Prof. Dr. Harald ROSENTHAL**  
*Editor, Journal of Applied Orthopedics*

**Meeting Session:**

- 1. Introduction of publication manuscript and their basic structures (original contributions, project reports, brief communications, Technical Contributions, etc.)
- 2. How to write a good title (title of the manuscript)
- 3. Proper selection of title (serving the science market)
- 4. Abstract (how to write it, how to make it fit to attract target audience)
- 5. How to write enough to serve the balance in reporting method
- 6. Structuring the presentation of any results
- 7. How to present results (tables and figures)
- 8. Presentation of tables and graphics: not as easy as one usually thinks!
- 9. How to write a good conclusion
- 10. How to properly cite references of various categories
- 11. How to write a good reference section (what is the meaning of the so-called Impact Factor and are there alternative indices?)
- 12. Principles of manuscript evaluation by referees (what needs the author to know about the process?)
- 13. Alternative Session:
- 14. Hand-on handling of draft manuscripts voluntarily provided by participants.

**Prof. Dr. Serdar BOZKURT**, who is the editor of the *Journal of Applied Orthopedics*, will give a one day course on "How to structure and write a scientific paper" on October 20, 2012 at [Ege University](http://www.ege.edu.tr) Faculty of Medicine, Ege University Kultur Sanat Conference Hall / Ege Üniversitesi Kültür Sanat, Antalya

**OCTOBER 20, 2012 / 20 EKİM 2012**

Ege University Kultur Sanat Conference Hall / Ege Üniversitesi Kültür Sanat, Antalya  
 Organized by Ege University by Defense Publishing Office  
 Tel: +90 322 266 42 25 - 511 3000 - Fax: +90 322 266 42 25

## Element: abstract / introduction

- Emphasize a few important points must be a help to the structure of the poster
- Essential points / positioning the research
- Explains why this work is important
- Do not just repeat the abstract from the proceedings, which will be too wordy for this purpose
- 150 – 200 words
- **Complete Clear Concise Cohesive**

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**Expression, purification, and crystallization of recombinant mouse phospholipase c-zeta (PLC- $\zeta$ )**

**ABSTRACT**  
 The aim of this study is to express and purify recombinant mouse PLC- $\zeta$  and to determine its crystallographic structure. To date, there is no available emission data of PLC- $\zeta$ . The structure of PLC- $\zeta$  is unknown and the structure is crucial as it presents information that can facilitate the development of new drugs. The function of PLC- $\zeta$  is also of which remained unknown. Biochemical analysis was also performed to determine the domain organization of PLC- $\zeta$  and the domain differences of PLC- $\zeta$  and empirically determined the domain organization of PLC- $\zeta$ .

**INTRODUCTION**  
 - Phospholipase C (PLC) is a member of phospholipase C family, was identified as the specific family of enzymes for assessing vesicles and thereby causing fertilization.

**Figure 1. Expressive action of PLC- $\zeta$ .** (A) Homology of PLC- $\zeta$  with other PLCs. PLC- $\zeta$  contains a Drosophila PLC- $\zeta$  domain, a PI(4,5)P<sub>2</sub>-binding domain, and a DAG-binding domain. (B) Human PLC- $\zeta$  can induce Ca<sup>2+</sup> release and eventually fertilization.

**Figure 2. PLC Domain Organization.** PLC- $\zeta$  consists of PLC- $\zeta$  domain, PI(4,5)P<sub>2</sub>-binding domain, and DAG-binding domain. These domains are also found in other PLC isoforms (e.g., PLC- $\beta$ , PLC- $\gamma$ , PLC- $\delta$ , PLC- $\epsilon$ , etc.).

**Figure 3. Biochemical analysis through sequence alignment and homology modeling revealed that the actin-binding region of PLC- $\zeta$  was significantly different from empirically determined PLC- $\zeta$ .**

**Figure 4. Molecular cloning of PLCZ1&#039;s construct.** The construct was generated by PCR cloning of PLCZ1&#039;s cDNA with 6xHis and 3C protease cleavage site (NLS1 to NLS2). Construct was confirmed by restriction digest using *Xba*I. Vector was digested to linearized construct to clone with the vector.

**Figure 5. Molecular cloning of PLCZ1&#039;s construct.** The construct was generated by PCR cloning of PLCZ1&#039;s cDNA with 6xHis and 3C protease cleavage site (NLS1 to NLS2). Construct was confirmed by restriction digest using *Xba*I. Vector was digested to linearized construct to clone with the vector.

**EXPERIMENTAL RESULTS**  
 - Electrophoresis results were from SDS-PAGE analysis of the protein. Crystals were formed to be screened. Preliminary analysis showed that the crystals were not suitable for X-ray diffraction due to presence of high salt concentration. Future study may be conducted to remove the salt and to determine the presence of high salt concentration.

**CONCLUSION**  
 - It was predicted from the bioinformatic analysis that PLC- $\zeta$  has a similar gene organization as PLC- $\alpha$  without Protoplasts.  
 - Specific differences were predicted to be in the *V*-region and the *C*-region.  
 - This hypothesis, however, was not tested as X-ray diffraction was not successful due to presence of high salt concentration. Future study may be conducted to remove the salt and to determine the presence of high salt concentration.

**Socio-environmental Dimensions of Safety of Mexican Seasonal Farmworkers in Saskatchewan: Opportunities for Learning Sustainability**

**Abstract**  
 Socio-environmental dimensions of safety of Mexican seasonal farmworkers in Saskatchewan, Canada, were examined. The study involved a mixed-methods approach using semi-structured interviews, document reviews, and a survey. The survey was distributed to Mexican seasonal agricultural workers (MSAW) in Saskatchewan. The study found that MSAW experience working conditions that have negative implications for sustainable development. To solve domestic farm labour shortages, Canada's Canada Mexico Seasonal Agricultural Workers Program (SMWP) was established in 1974. Canada is increasingly employing foreign farmworkers—their increasing importance requires greater attention.

**RATIONALE**  
 In Canada, systematic training and education for farmworkers is often not convenient for farmworkers.  
 In Saskatchewan, the SMWP has not been changed to serve its social environmental operation, workers' safety, cultural and linguistic barriers, and worker previous experience and skills.

**METHODS**  
 To describe the socio-environmental dimensions that MSAW experience in SMWP and to understand the implications for sustainable agricultural safety & health, and learning needs with respect to agricultural sustainability.

**OUTCOMES**  
 Farmers  
 Group Interviews  
 In-Depth Interviews  
 Document Review  
 Farmers  
 Civil Servants  
 Labour Legislation  
 Literature Review  
 Preliminary Findings  
 Initial contact with farmers  
 Initial farmer willingness to participate in the study  
 Influence of government policy for culturally and linguistically appropriate worker safety & health training

**CONCLUSION**  
 What are the risks of workers' agricultural safety & health and the social characteristics of program operation with respect to agricultural sustainability?  
 What are the worker safety & health training and other learning needs such as English skills?  
 What are the overall perceptions, experiences and expectations with respect to agricultural operations in SMWP?

**RELEVANCE TO PRACTICE**  
 - Promotion of agricultural sustainability in SMWP  
 - Agricultural safety & health knowledge & training socialization  
 - Interdisciplinary migrant/seasonal farm labour safety & health/learning needs research  
 - Learning needs and challenges for worker safety & health training

Arcadio Viveros-Guzman  
 PhD Student, School of Environment and Sustainability (SENS) Saskatoon, SK, av460@mail.usask.ca  
 Michael Saito, Michael Saito, PhD, is a CIHR funded by the Public Health and the Agricultural Rural Education (PHARE) Graduate Training Program  
 Abstract ID: 1056

chrss-scrsr.usask.ca/images/2011awards/2011-Student-1-Arcadio.jpg

## Element: data/results – text

- KISS (keep it short and simple)
- Remove all non-essential information
- Avoid footnotes
- Avoid abbreviations, acronyms, jargon
- Use no more than 1000 words
- Use charts as visual eye-candy
- Rule-of-thumb:
  - 20% text
  - 40% graphics
  - 40% space
- Format is domain dependent (mechanical engineering <math>\leftrightarrow</math> sociology)

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## Element: data/results - text

The ideal anesthetic should quickly make the patient unconscious but allow a quick return to consciousness, have few side effects, and be safe to handle.

### Ideal anesthetics

- Quick sedation
- Quick recovery
- Few side effects
- Safe to handle

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## Element: data/results - text

- Too much text
- Boring

- Better, still some room for improvement

**Cost Benefit analysis of Mass Immunisation against Influenza A(H1N1) in pregnant women in the United Kingdom**

Malcolm John Dickson, Sarah Davies, Marie Iddaloo - Rochdale Infirmary, Lancashire, OL12 0NB UK

This work is licensed under a [Creative Commons Attribution-NonDerivative License](http://creativecommons.org/licenses/by-nd/3.0/).

Getting the exact cost of a live birth in the UK is hard to quantify. However, a conservative estimate suggests that the cost of a live birth in the UK is approximately £3000. So if we consider the cost of a live birth to be £3000, then the cost of a single influenza vaccination per pregnant woman would be £3000/1000 = £3.

Source: Department of Health, [www.doh.gov.uk/2009-0109/long-term-care-analysis.html](http://www.doh.gov.uk/2009-0109/long-term-care-analysis.html)

Of course, in many maternal deaths, there is a large number of very significant complications. For example, the cost of a multiple birth is £6000.

In the 2009/2010 NICE season, the peak week of admissions to A&E of pregnant women was 12,000. This means that the cost of a single influenza vaccination could cost us the peak week of admissions three times. So pregnant women could cost us £36,000 per week. This is equivalent to the cost of 1200 admissions, averaging 2.4 A&E admissions per 1000 admissions. This had been calculated by the Department of Health.

All babies born to mothers admitted to A&E during this time were born before 32 weeks gestation. So every baby born would need a midwife visit. At a typical cost of £200 per day.

In October 2010 the cost of treatment assumed by GPs varied from £2000 to £20000 per patient.

[www.epostersonline.com/cog2011/?q=node/1395](http://www.epostersonline.com/cog2011/?q=node/1395)

**Cooling Effects of Dirt Purge Holes on the Tips of Gas Turbine Blades**

Eric Couch, Jesse Christophel, Erik Hohfeld, and Karen Thole

Gas turbine engines run better at higher combustion temperatures.

At higher combustion temperatures, these engines produce more power and have lower fuel consumption. However, the turbine inlet air temperature must be kept below the melting temperatures of the turbine blades. Otherwise, the blades will melt.

The project goal was to find the best cooling techniques.

To find the effects, we performed wind tunnel experiments to measure the effect of different numbers and sizes of dirt purge holes on the melting temperatures of the turbine blades.

Figure 1: Pratt & Whitney F100 gas turbine engine.

Figure 2: Flow at the tip region of a turbine blade.

Figure 3: Large scale turbine blade in wind tunnel.

Figure 4: Measurements of the cooling effectiveness.

Figure 5: Lateral averaged effectiveness plotted against the number of holes.

In summary, dirt purge holes provide cooling to the top surface.

While intended to remove dirt from the fan, dirt purge holes also provide cooling to the top surface. As the dirt purge holes are located near the top of the blade, this cooling is reflected with a small gap for air as the dirt purge holes are located near the top of the blade and cool air.

Acknowledgments

The source for this project was Pratt & Whitney.

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**Using students' personal stories for learning**

N Catherine, J Goodfellow, P Ross,  
Dr M Corrigan, Dr J Johnston, Mrs C Thomson, Dr K McGlade.

**Background**

- The development of cynicism and a decline in attitudes towards professionalism among medical students as they progress through their training has been linked to the hidden curriculum.<sup>1,2,3</sup>
- Narrative techniques are being increasingly employed to help understand complex social interactions.
- This project is interested in how professionalism is formed and whether the phenomena of the loss of idealism observed during training, could be addressed with learning resources derived from student peer to peer video interviews.

**Methods**

- 11 first (n=6) and fourth (n=5) year students interviewed 42 of their peers on camera.
- Student researchers kept reflective diaries and "field notes".
- Transcription of interviews.
- Themes from interviews were identified.
- Website structures brainstormed.

**Methodological approach:**

At 42 first and fourth year student participants. Queen's University Belfast Information Services.

**Expectations**

**Professionalism**

**Experiences**

"I'm not exactly what I thought it was going to be... I can just remember being a 3rd year about 4 yrs...The amount of cynicism I saw...realising that any time we'd do a spot play I'd just sit there and think 'F\*\*\* off'." Male - 4th year

"There's a couple of doctors who have inspired me...they've gone around the bedside and how they treat their patients and...make you see what you want to be as good as them." Male - 4th year.

"Being confident, acting towards someone like you care for them, that someone was caring for you. Can this be learnt? A lot of it is common sense." Female - 1st year

**References:**

- Hilton S, Stoknick H. (2005). Proto-professionalism: how professionalisation occurs across the continuum of medical education. *Medical Education* 39:59-65.
- Hafferty F, Francis B. (1994). The hidden curriculum in medical school. *Academic Medicine* 69:851-871.
- Johnston J, Cupples M, McGlade K, Steele K. (2011). Medical Students' attitudes to professionalism an opportunity for the GP Tutor. *Education in Primary Care* 22: 321-7.

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## Element: data/results - charts

- Table:
  - Limited number of data
  - Label columns
- Charts:
  - Large set of data points
  - Do not forget to label plots, axes, ...
- Charts must be readable at a distance of 2 m!
- Get all the charts in a uniform way, size

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**Teaching Human Factors to Medical Students- A Simulation Based Course** Hull and East Yorkshire Hospitals NHS  
Sega Pathmanathan, Faiza Chowdhury, Jivendra Gosai, Rebekah Molyneux, Makani Purva

**Introduction**  
The role of human factors in medical error has been well recognized with 60% of all errors being attributed to human factors particularly problems in communication<sup>1</sup>. A preliminary survey of medical students undergoing an optional placement at our simulation centre suggested that they had no or limited knowledge regarding the role of human factors in error. We designed a simulation based half a day course addressing the role of human factors in error and evaluated how effective it was in achieving its objectives.

**Methods**  
We recruited 6 candidates, who were medical students. Prior to the course each candidate was given a questionnaire to assess their confidence in leadership skills, communication, knowledge of human factors and ability to prioritise both medical and human factors. The course was run by the Human Factors team. A pre-course scenario was developed. The candidates were asked to manage a patient in a ward setting while managing a ward of other patients and has a task to do for one of those patients. However as the scenario progressed the candidate is given a number of distractions of varying complexity, which they are prone and attend to. The distractions vary from calls from other wards to other urgent tasks on other wards. The candidate is debriefed on the session with the other candidates also giving feedback. The scenario was then re-run after the debrief session with another candidate. Following the course, a post course questionnaire with similar questions as the pre-course was administered to evaluate the effectiveness of the course. Feedback was also obtained.

Results			
Confidence in:	Mean Pre Course	Mean Post Course	P Value
Knowledge of Human factors contributing to error?	2.33(1.03)	3.83(0.75)	0.02*
Ability to communicate clinical details	2(0)	3.67(1.03)	0.14
Leadership skills?	2.33(0.82)	3.50(0.84)	0.03*
Prioritising clinical tasks in an acute situation?	1.83(0.75)	3.17(1.17)	0.04*
Prioritising non-clinical tasks in an acute situation?	2(0.63)	3.5(1.22)	0.04*
Recognizing when to call for senior input?	3.5(0.55)	4.33(0.82)	0.07

Feedback	
Feedback Question	Mean Score
Human Factors-An overview	4.67
SBAR Communication session	4.67
Simulation encounter	5
De Briefing Session	5
Facilitator Feedback	4.67

**Discussion**  
The increases seen in confidence levels demonstrate the impact of the course in learning about Human factors. We believe that by developing this, we can fill the gap in Human factors awareness. The Yorkshire and Humber Deanship Foundation School has recently included this in their curriculum delivery<sup>2</sup> and we plan to extend this course to all year one foundation doctors in our region.

**References**  
 1) Rogers Jr, Gavende, Kuan et al. Analysis of surgical errors in closed malpractice claims at 4 liability insurers. *Surgery* 2006;140:25-33  
 2) Yorkshire and Humber Deanship Foundation School Clinical skills and Simulation Strategy. <http://www.yorkshireandhumberdeanery.nhs.uk/yorkshirefoundationsschool/documents/YorkshireandHumberDeaneryFoundationSchoolClinicalSkillsandSimulationStrategy.pdf>

<http://www.epostersonline.com/asme2013/?q=node/83&posterview=true>

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**Assessment of Bench top model to enhance student performance as assessed by DOPS**

A Mahmood, S Mallappa, N Kamal, A Jethwa, J Pitkin

Imperial College London

**Introduction**

Medical students may find certain clinical procedures challenging to achieve satisfactory levels of skill and confidence in a restricted 7 week Q&G rotation.

An intervention with use of training on bench top model is compared to non intervention group in order to evaluate impact on skill and confidence levels.

Aim was to evaluate the introduction of 'DOPS' on cervical smear examination to year five medical students. The objective was to provide students an opportunity to learn and improve their skills and confidence.

**Methods and Results**

Fifth year medical students were divided into two groups:

- One group had a BTM (bench top model) practise session before the actual DOPS.
- The other group went ahead for DOPS following a traditional teaching session.

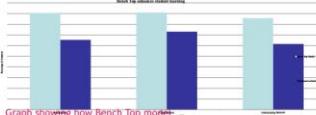
Feedback was collected through post assessment questionnaire.

- 90.47% from Group 1 agreed they felt more prepared to perform CSE on a patient.
- 91% felt more confident to explain the procedure to a patients, owing to a better understanding of the procedure and the terminology involved.
- 85.71% felt NHCSS programme was more clearly enforced while preparing on a BTM.

**Conclusion**

Cervical smear examination is an important, practical skill to learn as it is a requirement to manage gynaecological patients.

- Using low fidelity simulation such as BTM for cervical smear examination training increased student confidence and may facilitate transition of skills from practice on a model to the outpatient clinic.
- Also, a follow up longitudinal study is necessary to assess their performance in the outpatient clinic setting.



<http://www.epostersonline.com/asme2013/?q=node/76&posterview=true>

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## Element: conclusion

- Important part of the poster
- Emphasize the important/strong points
- New insights/interpretations
- Use bullets to distinguish the different elements

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## Element: acknowledgements / references

- **Acknowledgements**
  - Funding,
  - Who was helping you out with your research
- **References**
  - Only the important – no literature study
  - Can be expanded during conversation

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# Scientific Poster

## Working in PowerPoint



## Content

- Before you start
- PowerPoint setup
- Text
- Charts
- Images
- Color



Ok, smarty pants, give me a new PowerPoint tip, something not shared before.

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# Before you start



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## Note for technophobes

- Do not use Word!
  - Works well for A4, enlarging to A0 is disappointing
  - Difficult to get it printed on a large format
- Do not convert a PowerPoint presentation into a poster
  - 100% bad result



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**Percutaneous Nephrolithotomy in pediatric age group - single center experience**  
Dr. N.I. Bhuiyan , Assistant Professor , Department of Urology, Bangladesh Medical College Hospital,Bangladesh

<b>Percutaneous Nephrolithotomy in pediatric age group -single center experience</b>  Dr. N.I. Bhuiyan Assistant Professor Department of Urology Bangladesh Medical College Hospital, Dhaka, Bangladesh T: 02-9663411, F: 02-96634112, M: 0171-3133000, S: 0171-3133000	<b>Introduction</b>  Percutaneous Nephrolithotomy (PCNL) is an established method of renal stone management in adults. Safety and the providers' trust in the procedure has led to its acceptance as the first choice of procedure for management of renal stone in pediatric age group also.	<b>Method</b>  <ul style="list-style-type: none"> <li>• Place of study : Dept. of Urology, Bangladesh Medical College &amp; Hospital</li> <li>• Study period : January 2009 to December 2011</li> <li>• Age range : 2 years to 7 years</li> <li>• Type of study : Retrospective</li> </ul>	<b>Method</b>  <ul style="list-style-type: none"> <li>• Preferred initial urination:</li> <ul style="list-style-type: none"> <li>-Urinate prior to procedure</li> <li>-Urinate after procedure</li> </ul> </ul> <ul style="list-style-type: none"> <li>• Renal stone size under direct vision</li> <li>• Stone free confirmed by fluoroscopy &amp; Suproscopy.</li> </ul>	<b>Location of stone</b>  <ul style="list-style-type: none"> <li>• Partial staghorn calculus : 3 cases</li> <li>• Polycystic kidney : 3 cases</li> <li>• All stones and in calyceal stone : 2 cases</li> <li>• Upper calyceal stone : 2 cases</li> <li>• Residual Upper calyceal stone after open surgery: 1</li> </ul>												
1	2	3	4	5												
Method Site of puncture Inferior calyceal puncture : 7 Upper calyceal puncture : 2 Mid calyceal puncture : 2 Single (flexscope guidel)	Inclusion Criteria  Normal renal function Normal renal anatomy Normal renal pelvis & calyces  Exclusion criteria  Any anatomical abnormality of kidney Impaired renal function Bladder disorders	Results  • Complete stone clearance achieved in all cases • Average time taken for stone extraction : 1 hour • Suprapubic and D-J stenting in 7 cases • Ureteric stenting in 1 case • Postoperative blood transfusion needed in two cases • Average hospital stay : 24 hours • Suprapubic tube kept for 24 hours • Hospital stay : 1 day • After 3 months : 10 cases re-performed • USG done in 10 cases, X-ray KUB and urine CTS all normal at second visit	9	10												
6	7	8	9	10												
Left renal stone  Right renal stone  Posterior view of kidney  Complex calyx of kidney	Cystoscopy image  Posterior view of kidney  Posterior view of kidney  Posterior view of kidney	<b>Complications</b>  <table border="1"> <tr> <td>Bleeding</td> <td>Not significant</td> </tr> <tr> <td>Cystitis</td> <td>Not significant</td> </tr> <tr> <td>Urine leakage (pus, Stnt)</td> <td>Nil</td> </tr> <tr> <td>Urinary tract infection</td> <td>Nil</td> </tr> <tr> <td>Infection</td> <td>Nil</td> </tr> <tr> <td>Urinary</td> <td>Nil</td> </tr> </table>	Bleeding	Not significant	Cystitis	Not significant	Urine leakage (pus, Stnt)	Nil	Urinary tract infection	Nil	Infection	Nil	Urinary	Nil	<b>Conclusion</b>  <ul style="list-style-type: none"> <li>• Pediatric PCNL is safe and effective</li> <li>• Can be performed even in single procedure</li> <li>• Pediatric PCNL are an special procedure but in it's absence we can't do anything</li> <li>• Experience of whole team is essential for successful outcome.</li> </ul>	Posterior view of kidney  Posterior view of kidney  Posterior view of kidney
Bleeding	Not significant															
Cystitis	Not significant															
Urine leakage (pus, Stnt)	Nil															
Urinary tract infection	Nil															
Infection	Nil															
Urinary	Nil															
11	12	13														

<http://www.epostersonline.com/siu2013/?q=node/47&posterview=true>

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## PowerPoint?

- ✓ Easy to start with.
- ✓ Available.
- ✓ Common use.
- ✓ Office-suite, Microsoft world.
- ✓ Templates available.
  - Presentation software, not designed for posters
  - No color management
  - Printing can be a problem

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## Software

- <http://academia.stackexchange.com/questions/1880/software-to-use-for-creating-posters-for-academic-conferences>
- Inkscape, Illustrator, Corel Draw, ...
  - more powerful,
  - steeper learning curve.

	Powerpoint	Graphical software
Ease of use	Ok	Learning curve
Graphics handling – text wrap	No	Excellent
Layers	No	Many
Autoflow between text boxes	No	Yes

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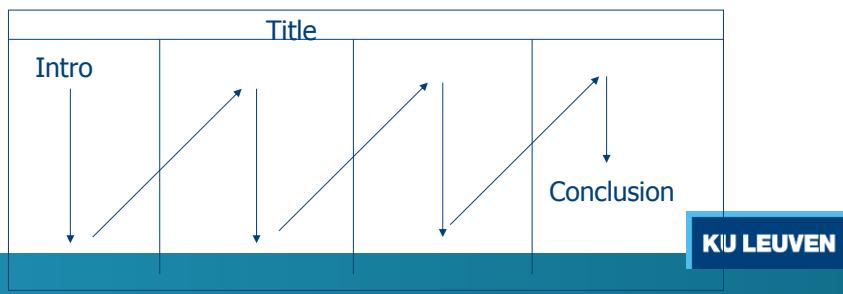
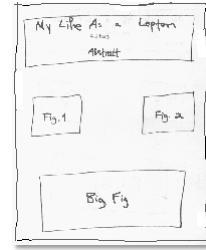
## Get ready

- Have all the information bits collected before starting the production.
- Collect all information in 1 folder (source code)
  - Images (correct format)
  - Graphics (correct format)
  - Data
- Get the layout sketched on paper

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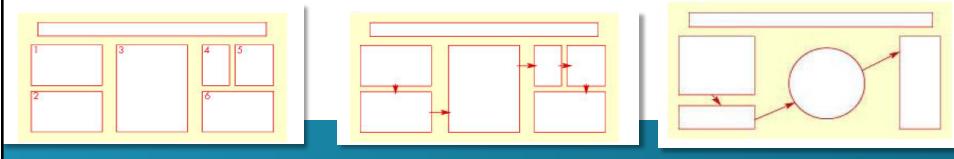
## Poster layout

- Start by sketching a layout on paper
- Read a poster as a newspaper
- Use columns, try to place the important points at eye level



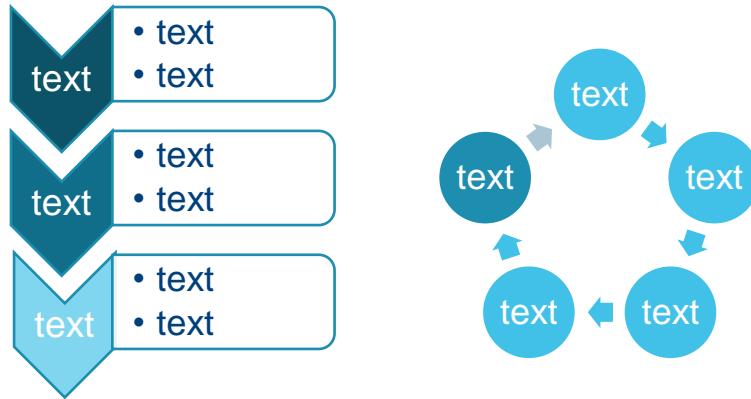
## Poster layout

- Use 3 to 5 columns (landscape)  
1 tot 3 columns (portrait)
- Order the elements vertically from upper left to lower right
- Order the objects logically
- Use sections
- Add graphics, tables, images
- Number sections or use visuals to guide the reader



## Poster layout

- SmartArt can help



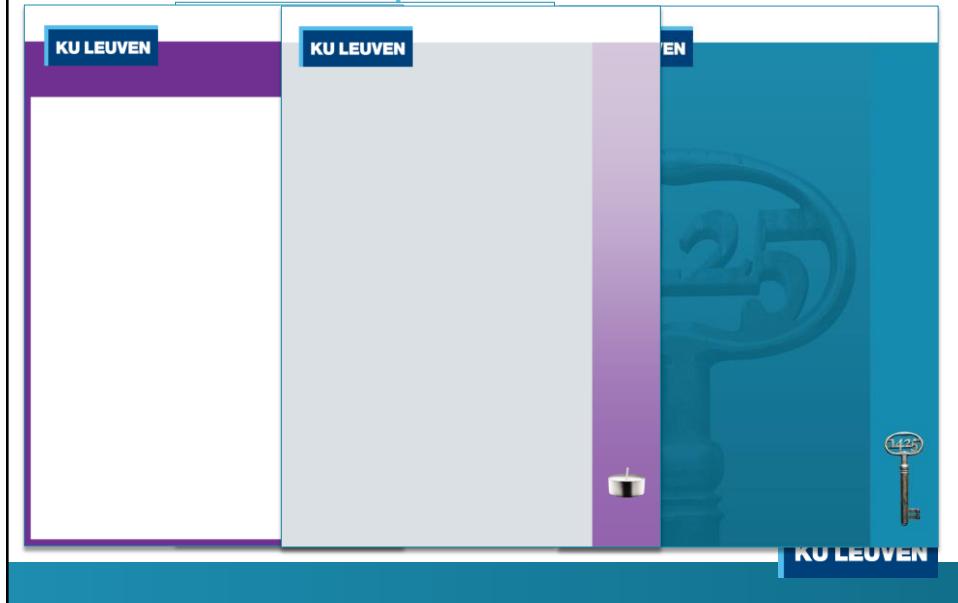
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## Poster layout: template or inspiration?

- Some organizations have their own template
- Department can have a template
- Dienst communicatie
  - [http://www.kuleuven.be/communicatie/publicaties/drukwerk/poster\\_powerpoint.html](http://www.kuleuven.be/communicatie/publicaties/drukwerk/poster_powerpoint.html)
  - Standard template
  - Scientific posters
  - no white borders allowed!
  - Portrait only
- Web:
  - Search for: powerpoint template scientific (academic) poster
- Other people will use the same template...

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## KU Leuven templates



### Cheating tip

- Start with KU Leuven template
- Have your favorite template from internet, use it in the KU Leuven template
- Adjust the colors
  - Instant eye-dropper: <http://instant-eyedropper.com/>
- Start filling out the boxes
- Example: handson-AFF\_A0\_start.pptx

# Setup



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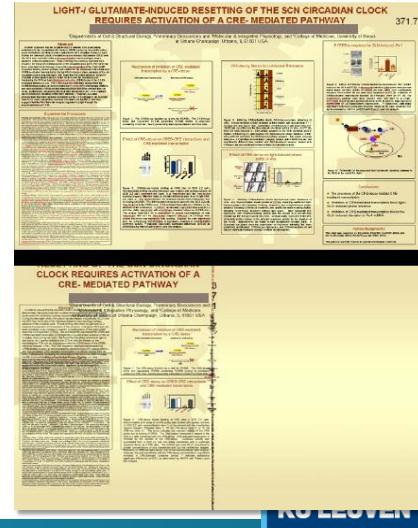
## Check

- <http://www2.le.ac.uk/offices/ithelp/downloads/training/students/powerpoint-2010-posters-quick-guide>
- [https://weblearn.ox.ac.uk/access/content/group/e05e05d2-f4ce-4a24-a008-031832bd1509/LearningRes\\_Open/Course\\_Book\\_Ppt\\_TIUD\\_Conference\\_Posters10.pdf](https://weblearn.ox.ac.uk/access/content/group/e05e05d2-f4ce-4a24-a008-031832bd1509/LearningRes_Open/Course_Book_Ppt_TIUD_Conference_Posters10.pdf)

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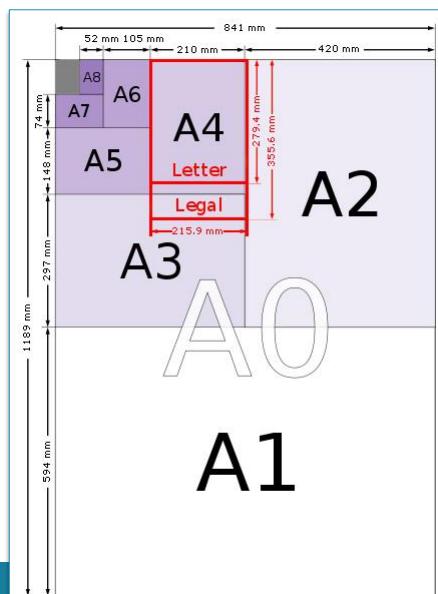
## Dimensions poster

- Immediately set the final dimensions
- Can be a problem with a template (scale correctly)
- Note:
  - Limit the size of your poster (2 m high posters are difficult to read!)
  - Do not make a larger poster than provided for
  - A0 (84\*118 cm),  
Oversize A0 (90\*125 cm)
  - PowerPoint: limited to  
1.34/1.42m



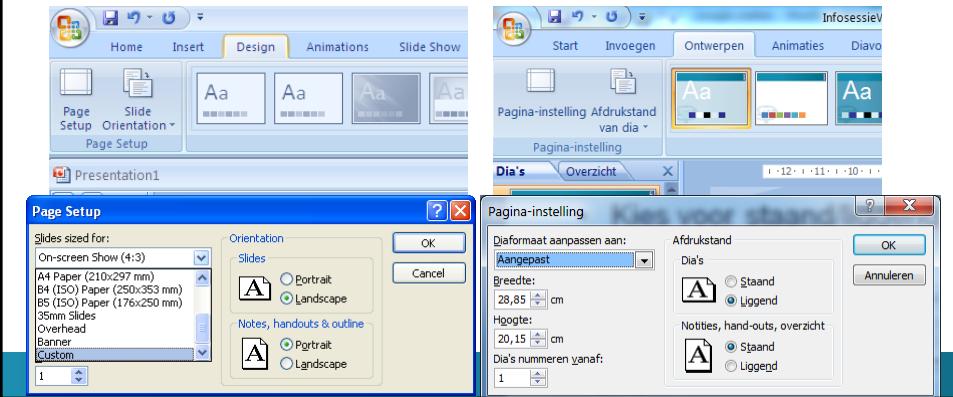
## Table of Paper Sizes

Size	Height x Width (mm)
4A0	2378 x 1682 mm
2A0	1682 x 1189 mm
A0	1189 x 841 mm
A1	841 x 594 mm
A2	594 x 420 mm
A3	420 x 297 mm
A4	297 x 210 mm
A5	210 x 148 mm
A6	148 x 105 mm
A7	105 x 74 mm
A8	74 x 52 mm
A9	52 x 37 mm
A10	37 x 26 mm



## Page size

- Set the final dimensions immediately
- Portrait / landscape
- **Design > Page Setup**
- **Ontwerpen > Pagina-instelling**



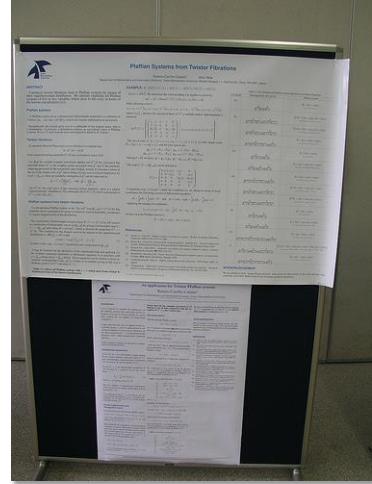
## Dimensions poster

- Check with the organization for available space



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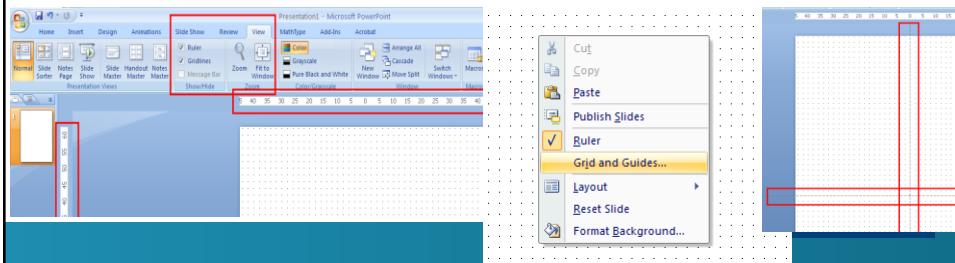
## Dimensions poster



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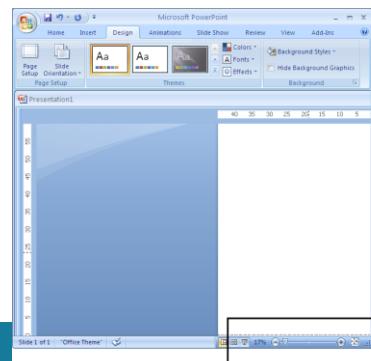
## Ruler & guides

- Ruler and guides are very helpful to place the objects
- **Beeld > Liniaal (View > Ruler)**
- Right click on slide, select ruler, grid and guides(liniaal raster en hulplijnen)
- Move the guide, make a new one with ctrl



## Zoom

- 100%: See what the poster will look like.  
Good for checking alignment of elements, quality of images, etc.
- 33%: Good for editing text.
- Fit: Good for seeing the overall layout.



## Shortcut keys

Key	Action	Key	Action
<b>Ctrl + A</b>	Select all objects	<b>Ctrl + Y</b>	Repeat last action
<b>Ctrl + B</b>	Bold	<b>Ctrl + Z</b>	Undo last change
<b>Ctrl + C</b>	Copy	<b>Ctrl + Mouse wheel</b>	Zoom in and out
<b>Ctrl + D</b>	Duplicate	<b>Ctrl + drag</b>	Create a copy of an object
<b>Ctrl + G</b>	Group selected objects	<b>Ctrl+arrow</b>	Move selected object one pixel at a time
<b>Ctrl + Shift + G</b>	Ungroup selected objects	<b>Tab</b>	Toggle through objects
<b>Ctrl + V</b>	Paste	<b>Shift + Left click</b>	Select multiple objects
<b>Ctrl + Alt + V</b>	Paste Special	<b>Shift + drag</b>	Move selected objects in 1 direction

## Hands on

- Create blanc poster
- Set poster orientation and size
  - Height 120cm
  - Width 90 cm
- Setup guides
- Use a template (landscape)
- Setup guides
  - 3 columns

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Text



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## Text in a text box

- Select Text Box and click where the Text Box should start. While you type, the Text Box will grow.
- Click-and-drag the Text Box to determine the width. (Autofit or not)
- Shape (placeholder)
  - Click the shape you want.
  - Click where you want the shape to go, and drag it to the size you want.
  - Right-click the AutoShape, click Edit Text, and then type your text.

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## Resize text box

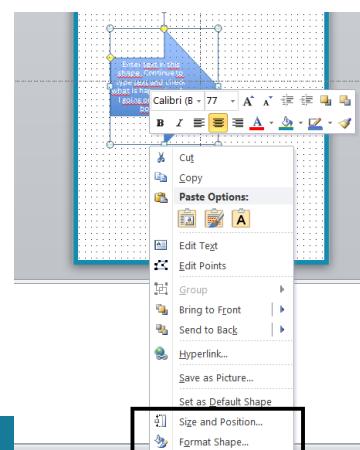
- Click inside box (dashed border), changes happen to text inside

Lorem ipsum dolor sit amet,  
consectetur adipiscing elit.

- Click on border (solid border), use square handles

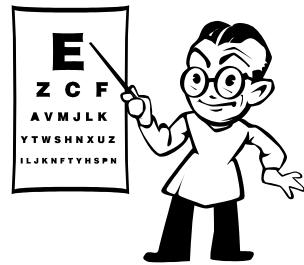
Lorem ipsum dolor sit amet,  
consectetur adipiscing elit.

- Use the properties
- Lipsum.com



## Font: dimensions (lower bound)

- Title: 96 pt
- Author: 72 pt
- Affiliation: 36-48 pt
- Section header: 36 pt
- Text: 24 pt
  
- Use standard fonts  
less problems when printing
- Easy to read:  
Arial, Calibri, Tahoma,  
Verdana



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## Font

- The quick brown fox jumps over the lazy dog -Arial-
- The quick brown fox jumps over the lazy dog –calibri-
- The quick brown fox jumps over the lazy dog –tahoma-
- The quick brown fox jumps over the lazy dog –verdana-
- The quick brown fox jumps over the lazy dog –courier-
- The quick brown fox jumps over the lazy dog –times new roman-
- The quick brown fox jumps over the lazy dog –bodoni poster-
- The quick brown fox jumps over the lazy dog –comic-
- The quick brown fox jumps over the lazy dog –vivaldi-
- The quick brown fox jumps over the lazy dog –curlz-
- **The quick brown fox jumps over the lazy dog** –ravie-

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## Title

- Title
  - < 6 words, capital letters only allowed
  - Careful with capital letters only, too busy



## Text

- Emphasis
  - Use **bold** instead underline. – use it moderately -
  - Use different font, font size, color
  - Avoid italics
- Be uniform, consistent in dimensions, style and font
- 

**avoid wordart**

## Text: emphasis + aligning

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Praesent purus ipsum, mollis vitae sollicitudin ut, volutpat eget libero. Suspendisse vel nisl erat. Vestibulum varius posuere mauris pharetra euismod. Aliquam eget magna massa, ac lacinia tortor. Vivamus gravida, sapien a dapibus tincidunt, neque felis volutpat tortor, at aliquet turpis ligula vitae lectus. **Pellentesque** velit arcu, fringilla a pellentesque quis, varius eu felis. Fusce tincidunt dignissim imperdiet. Aliquam et nibh nibh, vitae vestibulum risus. Ut at quam dui, vel suscipit libero. Etiam lectus augue, lobortis at ullamcorper sit amet, fringilla nec nulla. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Praesent purus ipsum, mollis vitae sollicitudin ut, volutpat eget libero. Suspendisse vel nisl erat. Vestibulum varius posuere mauris pharetra euismod. Aliquam eget magna massa, ac lacinia tortor. Vivamus gravida, sapien a dapibus tincidunt, neque felis volutpat tortor, at aliquet turpis ligula vitae lectus. Pellentesque velit arcu, fringilla a pellentesque quis, varius eu felis. Fusce tincidunt dignissim imperdiet. Aliquam et nibh nibh, vitae vestibulum risus. Ut at quam dui, vel suscipit libero. Etiam lectus augue, lobortis at ullamcorper sit amet, fringilla nec nulla. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus.

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## Text

- Align
  - Align (text and text blocks) provides a sense of order
  - Align left, do not use justify
- Layout
  - 7-8 words per line
  - Limit the size of a text line, make it easy for the reader
  - Keep the same column width
  - Use space
  - Use bullets

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# Align: center

REPLACE THIS BOX  
WITH YOUR  
ORGANIZATION'S  
HIGH RESOLUTION  
LOGO

**TEMPLATE PROVIDED BY GENIGRAPHICS - 800.790.4001**  
**REPLACE THIS TEXT WITH YOUR TITLE**

John Smith, MD<sup>1</sup>; Jane Doe, PhD<sup>2</sup>; Frederick Smith, MD, PhD<sup>1,2</sup>  
<sup>1</sup>University of Affiliation, <sup>2</sup>Medical Center of Affiliation

**ABSTRACT**

Click here to insert your Abstract text. Type it in or copy and paste from your Word document or other source. This text box will automatically re-size to your text.

To change the border style of this text box. Double-click on the dashed border, select 'Colors and Lines', and change the border to solid or whatever style/color you like. Or 'No Line' to remove the border altogether.

To change the font style of this text box. Click on the border once to highlight the entire text box, then select a different font or font size that suits you. This text is in Arial 32pt and is easily readable up to 6 feet away. Try to stay between 28pt – 40pt for best viewing.

**INTRODUCTION**

Click here to insert your Introduction text. Type it in or copy and paste from your Word document or other source. Click once on the dashed border to highlight the entire text box, then drag the bottom edge up to fit. Or change the font size to fit the box.

Double-click the border and select 'Text Box', then check 'Resize AutoShape to Fit Text' to have the box automatically re-size to your text.

To change the border style of this text box. Double-click on the dashed border, select 'Colors and Lines', and change the border to solid or whatever style/color you like. Or 'No Line' to remove the border altogether.

To change the font style of this text box. Click on the border once to highlight the entire text box, then select a different font or font size that suits you. This text is in Arial 32pt and is easily readable up to 6 feet away. Try to stay between 28pt – 40pt for best viewing.

**RESULTS**

**Genographics** has provided this template to assist in preparation of a medical or scientific research poster. The dimensions are set to 36" high by 48" wide but prints can also be scaled down to 18" high by 24" wide or 54" high by 72" wide. When you order your print we will know to scale the original file to the size you want.

For other sizes, visit us at [www.genographics.com](http://www.genographics.com) or send an email to [sales@genographics.com](mailto:sales@genographics.com) or give us a call toll free at 1-800-790-4001.

The various elements and text boxes included in this template are examples of what we commonly see on posters of this kind. They are simply placeholders and you are free to add or remove them, re-arrange, rename, or re-size as best suits your needs.

Choose Genographics to print your poster and we will perform a free design review and advise you if we see anything that may be a concern for printing.

We print directly from PowerPoint so your poster will look just like it does on screen. Other printing outlets (Kinkos, etc.) may not be able to produce the same quality of prints. This can result in elements shifting, loss of effects, or altered colors. By printing from the same version of PowerPoint that your file was created in, Genographics gives you the most accurate reproduction available.

**CONTACT**

Your name:  
Organization name:  
Email:  
Phone:  
Website:



Figure 1. Label in 24pt Arial



Figure 2. Label in 24pt Arial

**DISCUSSION**

Click here to insert your discussion text. Type it in or copy and paste from your Word document or other source. Click once on the dashed border to highlight the entire text box, then drag the bottom edge up to fit. Or change the font size to fit the box.

Double-click the border and select 'Text Box', then check 'Resize AutoShape to Fit Text' to have the box automatically re-size to your text.

To change the border style of this text box. Double-click on the dashed border, select 'Colors and Lines', and change the border to solid or whatever style/color you like. Or 'No Line' to remove the border altogether.

To change the font style of this text box. Click on the border once to highlight the entire text box, then select a different font or font size that suits you. This text is in Arial 32pt and is easily readable up to 6 feet away. Try to stay between 28pt – 40pt for best viewing.

**CONCLUSIONS**

Click here to insert your conclusions text. Type it in or copy and paste from your Word document or other source.

Click on the border once to highlight and select a different font or font size that suits you. This text is in Arial 32pt and is easily readable up to 6 feet away. Try to stay between 28pt – 40pt for best viewing.

**REFERENCES**

1. Click here to insert your References. Type it in or copy and paste from your Word document or other source.
2. Click on the border once to highlight the entire text box, then select a different font or font size that suits you. This text is in Arial 32pt and is easily readable up to 6 feet away. Try to stay between 28pt – 40pt for best viewing.
3. The line spacing is set to one-half of a line height after each entry. Select Format | Line Spacing to adjust the setting.

# Align: justify

REPLACE THIS BOX  
WITH YOUR  
ORGANIZATION'S  
HIGH RESOLUTION  
LOGO

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**REPLACE THIS TEXT WITH YOUR TITLE**

John Smith, MD<sup>1</sup>; Jane Doe, PhD<sup>2</sup>; Frederick Smith, MD, PhD<sup>1,2</sup>  
<sup>1</sup>University of Affiliation, <sup>2</sup>Medical Center of Affiliation

**ABSTRACT**

Click here to insert your Abstract text. Type it in or copy and paste from your Word document or other source. This text box will automatically re-size to your text.

To change the border style of this text box. Double-click on the dashed border, select 'Colors and Lines', and change the border to solid or whatever style/color you like. Or 'No Line' to remove the border altogether.

To change the font style of this text box. Click on the border once to highlight the entire text box, then select a different font or font size that suits you. This text is in Arial 32pt and is easily readable up to 6 feet away. Try to stay between 28pt – 40pt for best viewing.

**INTRODUCTION**

Click here to insert your Introduction text. Type it in or copy and paste from your Word document or other source. Click once on the dashed border to highlight the entire text box, then drag the bottom edge up to fit. Or change the font size to fit the box.

Double-click the border and select 'Text Box', then check 'Resize AutoShape to Fit Text' to have the box automatically re-size to your text.

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**RESULTS**

**Genographics** has provided this template to assist in preparation of a medical or scientific research poster. The dimensions are set to 36" high by 48" wide but prints can also be scaled down to 18" high by 24" wide or 54" high by 72" wide. When you order your print we will know to scale the original file to the size you want.

For other sizes, visit us at [www.genographics.com](http://www.genographics.com) or send an email to [sales@genographics.com](mailto:sales@genographics.com) or give us a call toll free at 1-800-790-4001.

The various elements and text boxes included in this template are examples of what we commonly see on posters of this kind. They are simply placeholders and you are free to add or remove them, re-arrange, rename, or re-size as best suits your needs.

Choose Genographics to print your poster and we will perform a free design review and advise you if we see anything that may be a concern for printing.

We print directly from PowerPoint so your poster will look just like it does on screen. Other printing outlets (Kinkos, etc.) may not be able to produce the same quality of prints. This can result in elements shifting, loss of effects, or altered colors. By printing from the same version of PowerPoint that your file was created in, Genographics gives you the most accurate reproduction available.

**CONTACT**

Your name:  
Organization name:  
Email:  
Phone:  
Website:



Figure 1. Label in 24pt Arial

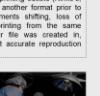


Figure 2. Label in 24pt Arial

**DISCUSSION**

Click here to insert your discussion text. Type it in or copy and paste from your Word document or other source. Click once on the dashed border to highlight the entire text box, then drag the bottom edge up to fit. Or change the font size to fit the box.

Double-click the border and select 'Text Box', then check 'Resize AutoShape to Fit Text' to have the box automatically re-size to your text.

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**CONCLUSIONS**

Click here to insert your conclusions text. Type it in or copy and paste from your Word document or other source.

Click on the border once to highlight and select a different font or font size that suits you. This text is in Arial 32pt and is easily readable up to 6 feet away. Try to stay between 28pt – 40pt for best viewing.

**REFERENCES**

1. Click here to insert your References. Type it in or copy and paste from your Word document or other source.
2. Click on the border once to highlight the entire text box, then select a different font or font size that suits you. This text is in Arial 32pt and is easily readable up to 6 feet away. Try to stay between 28pt – 40pt for best viewing.
3. The line spacing is set to one-half of a line height after each entry. Select Format | Line Spacing to adjust the setting.

## Align: left

**REPLACE THIS BOX  
ORGANISE YOUR  
HIGH RESOLUTION  
LOGO**

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John Smith, MD<sup>1</sup>; Jane Doe, PhD<sup>2</sup>; Frederick Smith, MD, PhD<sup>1,2</sup>  
<sup>1</sup>University of Affiliation, <sup>2</sup>Medical Center of Affiliation

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<b>CONTACT</b>  *your name* *Organization name* Email: Phone: Website:	<b>METHODS AND MATERIALS</b>  Click here to insert your Methods and Materials text. Type it in or copy and paste from your Word document or other source. Click once on the dashed border to highlight the entire text box, then drag the bottom edge up to fit. Or change the font size to fit the box.  Double-click the border and select "Text Box", then check "Resize AutoShape to Fit Text" to have the box automatically re-size to your text.  To change the border style of this text box, Click on the border once to highlight the entire text box, then select a different font or font size that suits you. This text is in Arial 32pt and is easily readable up to 6 feet away. Try to stay between 28pt – 40pt for best viewing.  To change the font style of this text box, Click on the border once to highlight the entire text box, then select a different font or font size that suits you. This text is in Arial 32pt and is easily readable up to 6 feet away. Try to stay between 28pt – 40pt for best viewing.	<b>CONCLUSIONS</b>  Click here to insert your Conclusions text. Type it in or copy and paste from your Word document or other source.  Click on the border once to highlight and select a different font or font size that suits you. This text is in Arial 32pt and is easily readable up to 6 feet away. Try to stay between 28pt – 40pt for best viewing.	<b>REFERENCES</b>  1. Click here to insert your References. Type it in or copy and paste from your Word document or other source. 2. Click on the border once to highlight and select a different font or font size that suits you. This text is in Arial 32pt and is easily readable up to 6 feet away. Try to stay between 18pt – 28pt for best viewing. 3. The line spacing is set to one-half of a line height after each entry. Select Format   Line Spacing to adjust the setting.

## Align tool

- Use align tool to align different objects on the poster
  - Select objects
  - Align

- Use guides

## Hands on

- Create a Title + Author list
- Put text boxes on the poster (use lipsum.com)
- handson-AFF\_A0\_text

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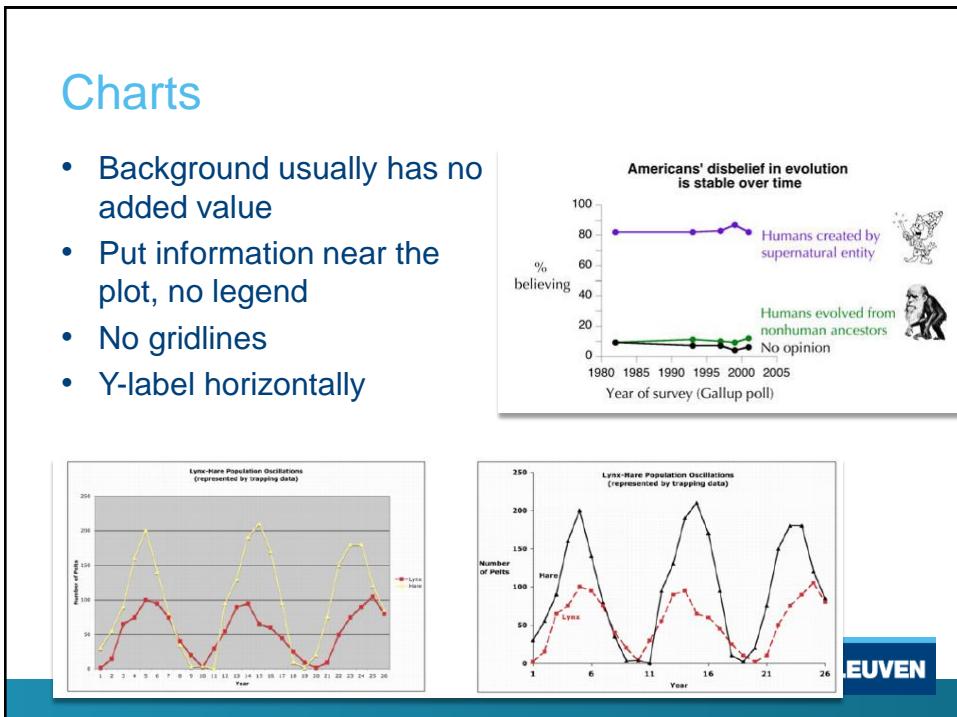
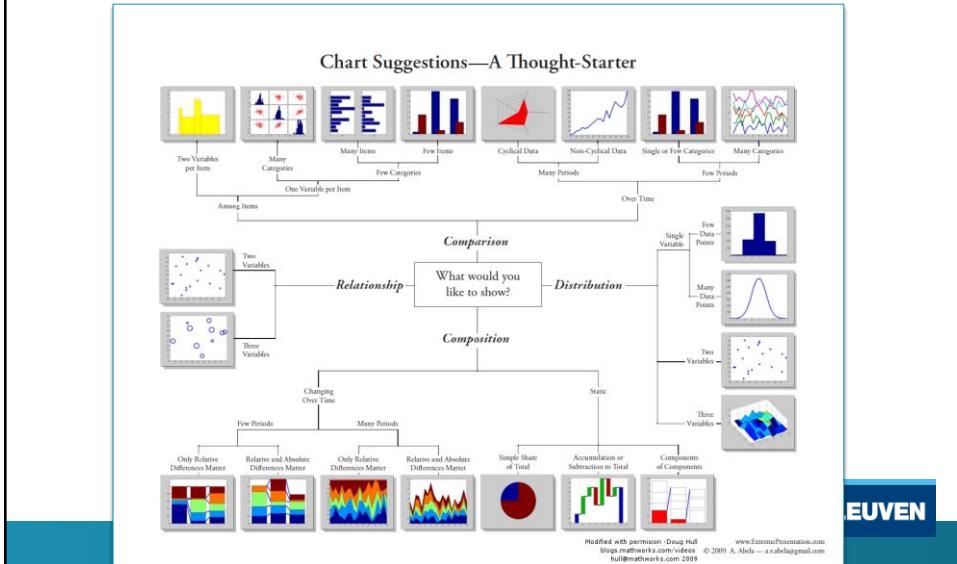
Chart



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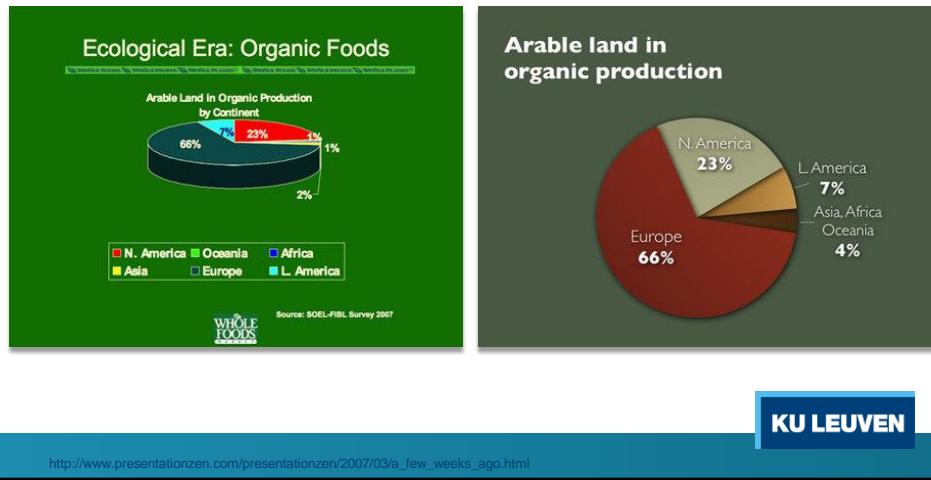
## What chart?

- Andrew Abela: [extremepresentation.typepad.com/blog/2006/09/choosing\\_a\\_good.html](http://extremepresentation.typepad.com/blog/2006/09/choosing_a_good.html)



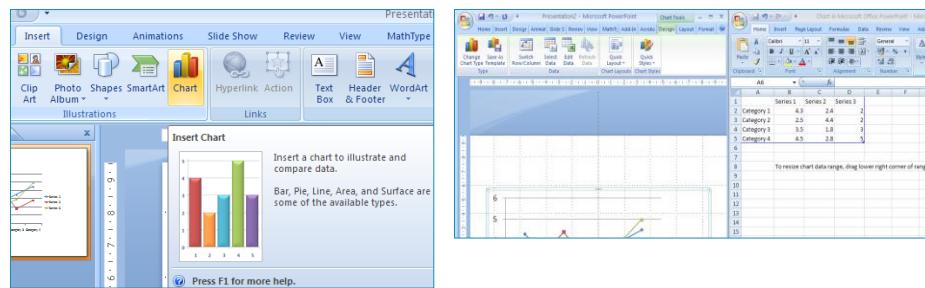
## Charts

- Avoid 3D-charts if possible



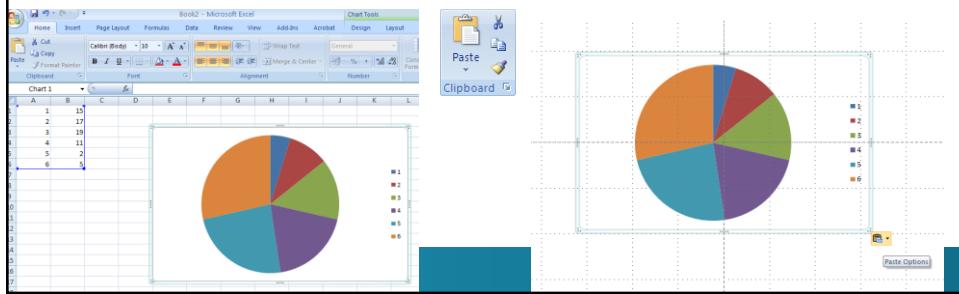
## Charts powerpoint

- Start from scratch within PowerPoint
- Insert > Chart (Invoegen > Diagram)**  
Make a choice and spreadsheet opens



## Charts excel

- Transfer from Excel can sometimes cause problems
- Copy chart in Excel
- **Paste (Plakken) (in Home menu)**
- **Paste special (plakken speciaal) > preference for importing as a png**



## Charts

- When putting charts from different sources (Matlab, SAS, SigmaPlot, Excel, ...):
  - Be uniform
  - Try to use the same fonts
  - Import as picture
  - emf (enhanced meta file) gives good results
- For charts and diagrams try
  - Gliffy: <http://www.gliffy.com/>
  - Lovely Charts: <http://www.lovelycharts.com/>

## Table

- Tables work best when the data presentation:
  - Is used to look up or compare individual values
  - Requires precise values
  - Values involve multiple units of measure
  - Limited number of values
- Graphs work best when the data presentation:
  - Is used to communicate a message that is contained in the shape of the data
  - Is used to reveal relationship among many values
- Use Insert > Table
- Format table

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[http://www.informationbuilders.com/new/newsletter/9-2/05\\_lozovsky](http://www.informationbuilders.com/new/newsletter/9-2/05_lozovsky)

## Hands on

- Use ExampleChart.xlsx to create a chart
  - Include the chart into the poster
- Use ‘Insert Chart’ within Powerpoint
- handson-AFF\_A0\_charts

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# Images



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## Images

- Useful information: <http://it.med.harvard.edu/ris>
- Get the correct resolution
  - Avoid clip-art (be professional)
  - No web images
  - No overkill on resolution (scan, digital pictures) 300 - 600 dpi
  - Process images outside PowerPoint (Photoshop, gimp, pixlr.com)
- Turn off image compression
  - File > Options > Advanced
  - Check 'Do not compress images in file'

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## Images

- Dimensions
  - Keep aspect ratio (lock aspect ratio)
  - Inspect at full size (100%)
- Use the right type (png, tiff, jpeg)

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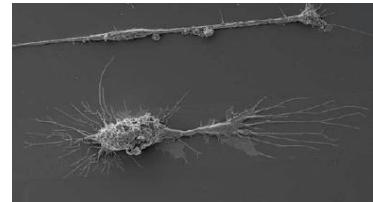
## Copyright free images

- Morgue File - <http://www.morguefile.com/>
- Wikimedia Commons - <http://commons.wikimedia.org/>
- Library of Congress Prints & Photographs online  
<http://www.loc.gov/pictures/>
- Google Images using the 'usage rights' filter.
- Flickr Creative Commons - Only search within **Creative Commons**-licensed content
- FreeFoto.com
- Image\*After - <http://www.imageafter.com/>

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## Images

- Do not forget:
  - Legend
  - Scale
- Images with a small border seem to look better



## Images

72 ppi  
1 inch square



150 ppi  
1 inch square



300 ppi  
1 inch square



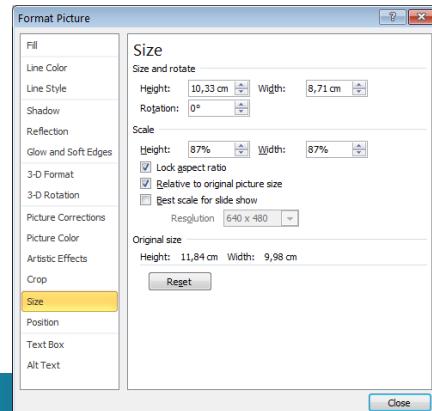
## Images

- Insert:
  - Use insert menu (best choice)
  - Copy/paste using the clipboard (image quality can decrease)
- Image can be edited further  
**Picture tools > format**



## Images

- Select
- lock aspect ratio
- Relative to original picture size



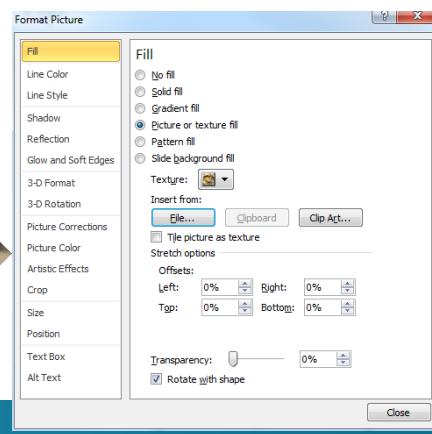
## Logo

- K.U.Leuven logo's:  
[https://www.kuleuven.be/communicatie/publicaties/intranet/logo\\_zegel.html](https://www.kuleuven.be/communicatie/publicaties/intranet/logo_zegel.html)
- Take care:
  - Resolution
  - Transparency



## Tip

- Image in a shape
  - Insert shape
  - ‘Picture or texture fill’ the shape’ with an image from file



## Hands on

- Insert an image to the poster
    - Arenberg-240\_150.jpg
    - Arenberg-1680\_1050.jpg
- Set the width of the images at 25 cm

handson-AFF\_A0\_image

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Color



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# Color

- Use color to:
  - Highlight / emphasize
  - Separate / associate information
- Limit the color pallet, no coloring page
  - Do not overwhelm the reader
  - Should not compete with the information
- Use colors in a consistent way

**“**Color should be used in the same way that type size is used: **to emphasize importance**, not decorate a page.

— Alexander White

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## COLOR THEORY

QUICK REFERENCE SHEET FOR DESIGNERS

**SUBTRACTIVE**  
CREATED WITH INK  
START WITH WHITE, ADD COLOR  
CMYK

**ADDITIVE**  
CREATED WITH LIGHT  
START WITH BLACK, ADD COLOR  
RGB

**COLOR TYPES**

**MEANINGS**

**TER**

**CHROMA:** How pure a hue is in relation to gray  
**SATURATION:** The degree of purity of a hue  
**INTENSITY:** The brightness or dullness of a hue  
**LUMINANCE/VALUE:** A measure of the amount of light reflected from a hue  
**SHADE:** A hue produced by the addition of black  
**TINT:** A hue produced by the addition of white

Designed by Paper Leaf Design, with thanks to David Stokoe for source color meanings.

[http://www.paper-leaf.com/blog/wp-content/uploads/2010/01/ColorTheory\\_Screen\\_White.jpg](http://www.paper-leaf.com/blog/wp-content/uploads/2010/01/ColorTheory_Screen_White.jpg)

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## Color: background

- Use 1 background color
  - Take a light color
  - Avoid the standard PowerPoint textures
  - Dark font on light background reads better  
<http://www.hhs.gov/web/policies/webstandards/backgrounds.html>
  - Dark backgrounds tend to use a lot of ink (paper curl)

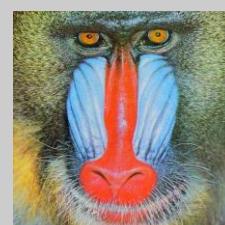
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## Color: background

- White background will reduce the impact of bright colors



- Grey background will enhance bright colors



## Color: gradient, transparency

### Gradient

- Be careful
- Print can be bad (banding)

### Transparency

- Print can be a problem
- As well in corel as ppt

Naturally occurring CD4+CD25+ Trcg cells were required to induce αTrtg CD4+CD25+ Trcg cells.

Responder cells (T cells or CD25-depleted T cells) were stimulated during 7 days with allogeneic irradiated PBMCs from the same donor as the responder cells. After two days of rest, cells were sorted into CD25+ and CD25- cells on a FACSorter. The sorted cells were then cultured for 5 days with αTrtg cells (10<sup>5</sup> αTrtg cells/ml) and increased PBSMCs from the same donor as the responder cells. The total proliferation was measured by [H]<sup>3</sup>-thymidine incorporation. Results are expressed as the % of the control for 5 days proliferation. In a total 7 days culture were used as responder cells, in all αTrtg cells were used as responder cells.

**Department of Metallurgy & Materials Engineering, Katholieke Universiteit Leuven, Belgium**

**1.Objective**  
Formation of microstructure along entire solidification path during unconstrained eutectic growth in ternary alloy without effect of gravity

**2.Model alloy: Al-Cu-Ag**  
Two alloy compositions:  
• Primary eutectic:  $\alpha$ -Al +  $\beta$ -Ag<sub>3</sub>Cu  
• Unvariant eutectic:  $\alpha$ -Al +  $\beta$ -Cu  
• Secondary eutectic: E:  $\alpha$ -Al +  $\beta$ -Ag<sub>3</sub>N

**3.Experiment module TEM 01-1M on board of SR Maxus 6**  
Thermal dissolution:  
• Temperature range: 27 → 29 °C  
• Thermal gradient: 10 °C/mm  
• Heating rate: 45 °C/min  
• Cooling rate: 7.5 °C/min  
• Sample size: 1 × 5 mm, d = 6 mm  
• BH oscillate: 27 → 29 °C  
• Solidification: T<sub>s</sub> = 531 °C  
• Cooling rate: 10 °C/min  
• Open air environment

**4.Results**  
Elements distribution along sample length Microstructure

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## Color: background image

- Usually disappoints
- Keep it really on the background!
- Print can be a problem (transparency)

**Synaptogenesis requires postsynaptic PSD-95/Dlg**

Frank A. Carrasco-Martinez<sup>1,2</sup>, Marie-Pierre Ferrer<sup>1</sup>, Emilio Santini<sup>1</sup> and Akira Chiba<sup>3</sup>  
<sup>1</sup> Biology Department, University of Puerto Rico, Mayaguez, Puerto Rico;  
<sup>2</sup> National Institute of Genetics, Mishima, Shizuoka, Japan;  
<sup>3</sup> Department of Cell and Developmental Biology, University of Illinois, Urbana, USA

**SYNAPTIC PLASTICITY**

**POSTSYNAPTIC DENSITIES**

**SYNAPTIC PLASTICITY**

**A. Mean AUC between baseline and week 2, 4, 12, 18, 24, and the last recording of the change in the WOMBAC test, and the first recording of the change in the WOMBAC test, and week 2, 4, 12, 18, 24, and the first recording of the change in the WOMBAC test, versus baseline. A positive AUC value indicates improvement in condition, while a negative AUC value indicates deterioration in condition. A positive AUC value between baseline and week 14, a positive AUC value between baseline and week 18, and a positive AUC value between baseline and week 24, which indicate an improvement in condition.**

**B. Mean AUC between baseline and week 2, 4, 12, 18, 24, and the last recording of the change in the WOMBAC test, and the first recording of the change in the WOMBAC test, and week 2, 4, 12, 18, 24, and the first recording of the change in the WOMBAC test, versus baseline. A positive AUC value indicates improvement in condition, while a negative AUC value indicates deterioration in condition.**

**C. Interaction between synaptic partners creates a new subcellular signaling compartment: myosin cluster**

**D. PSD-95/Dlg recruited to myosin cluster**

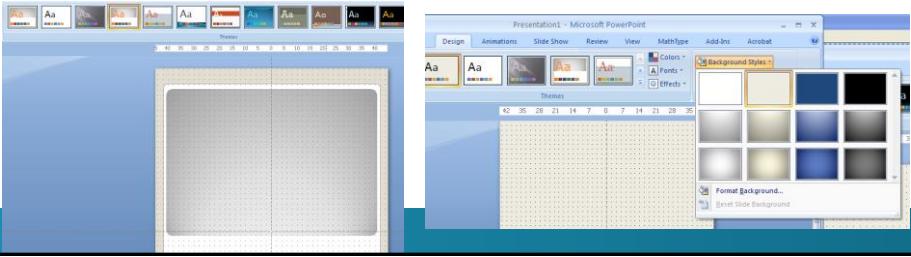
**E. Abolished cluster, disrupted synapse**

**F. Disrupted Dlg, abolished synapse**

**G. PSD-95/Dlg**

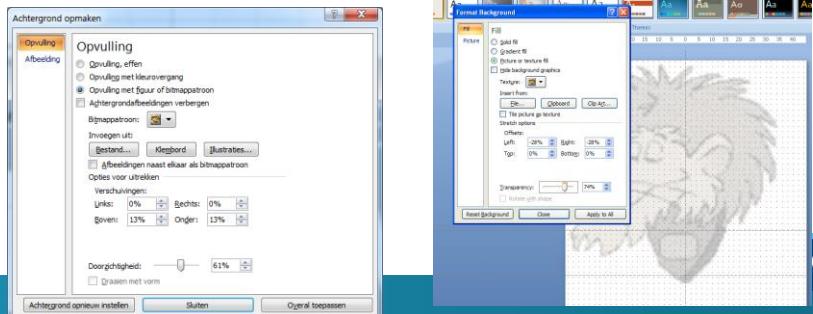
## Background

- grays and muted/pale colors help foreground information standout (cool colors)
- Keep backgrounds subtle; no busy backgrounds
- Different options in PowerPoint
- **Design > Themes (Ontwerpen > Thema's)**
- **Background Styles (Ontwerpen > Achtergrondstijlen > Achtergrond opmaken)**



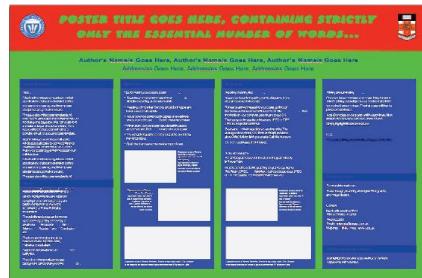
## Background

- Picture in background
- **Achtergrond opmaken > Opvulling met figuur (Format Background > Picture fill)**
- Change transparency



## Contrast

- Text blocks on white or pale background, dark fonts
- Use dark background / light letters for title, section headers
- Color blindness?!  
Red/green combinations



<http://www.vischeck.com/vischeck/vischeckImage.php>

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## Contrast

- Use clear contrasts
- Text shadow can disappoint
- Must be legible at 2m

•Solid  
•Gradient  
•Photograph  
•Graphic

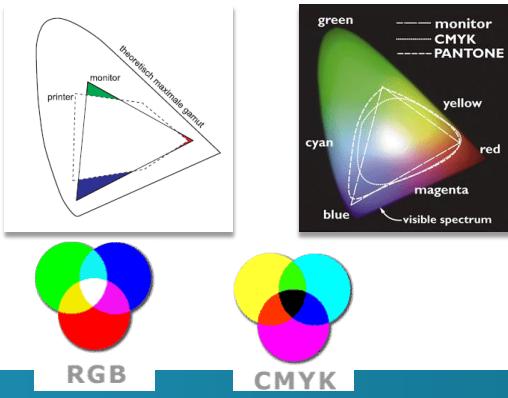


•Solid  
•Gradient  
•Photograph  
•Graphic

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## Color: print

- The color on the computer screen is not the color that will be printed!
- Range screen > range printer
- <http://www.overnightprints.com/difference-between-cmyk-rgb>



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## Note for technophobes

### Cut-and-Paste (*the analogue way – the traditional way*)

- Print separate A4's and glue it together
- ✓ Useful at the design stage
- ✓ Fast, simple
- Not always a success
- Emergency use only



## Where to print@ICTS?

- AGORA, Room 00.E01  
E. Van Evenstraat 4, 3000 Leuven  
[bib.kuleuven.be/english/agora](http://bib.kuleuven.be/english/agora)
  - HP DesignJet z6100.
  - Opening hours:  
Mon-Fri: 08.00-23.00h  
Sat: 09.00-17.45h
- ICTS Klantencentrum  
de Croylaan 52B (basement)  
Room 91.14, 3001 Heverlee
  - HP DesignJet z6200.
  - Opening hours:  
Mon-Fr: 08.00-12.30h and 13.00-16.00h.

## Paper

- Prints are made on roll (36" – 91 cm width)
- Glossy paper
- 140g paper



## Paper

### Glossy

- ✓ Crisp, clear and sharp images
- ✓ Richer color
- ✓ Shiny finish
- ✓ Colors remain vibrant
- ✓ Good ink absorption
- Smudges / finger marks appear easily, cannot be cleaned easily
- Glare forces viewing the print from selected angles

### 140g - matte

- ✓ Professional outlook, especially for black-and-white prints.
- ✓ Smudges and fingerprints are not easily identifiable.
- ✓ Absence of glare.
- Photos may look grainy
- Issues regarding texture or patterns

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## Paper

Format	Width (mm)	Height (mm)	140g paper	Glossy paper
Oversize A0	900	1245	€ 25,00 per poster	€ 31,30 per poster
A0	841	1189	€ 24,00 per poster	€ 30,00 per poster
A1	594	841	€ 16,80 per poster	€ 21,00 per poster
A2	420	594	€ 12,00 per poster	€ 15,00 per poster
Non standard	900	Up to 25.000	€ 20,00 per meter	€ 25,00 per meter

Borders cut DIY: free  
No cardboard or plastic boxes / tubes

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## Accepted File type

- Poster in PDF should have the correct final dimensions
  - Check the PDF file
    - is everything on the poster?
    - typo's, etc.
  - When the PDF looks good, you can be pretty confident that the printed version will also be OK.
- No software specific files (Illustrator, AutoCad, Photoshop, etc.) – the software is not available at the ICTS print stations
- Emergency only: ppt / pptsx

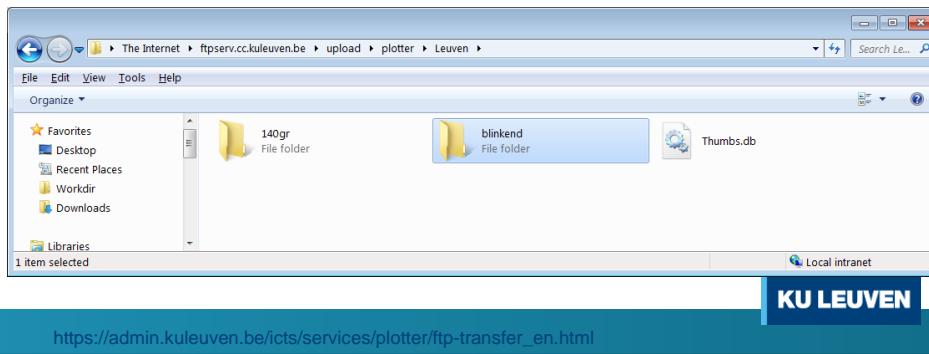
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## Procedure

1. Fill out form HP DesignJet plotter service (fill out all the information!  
<http://icts.kuleuven.be/sc/plotter>
2. Transfer the PDF file to the correct folder  
 Do not put the file in 'done'

## Transfer PDF file

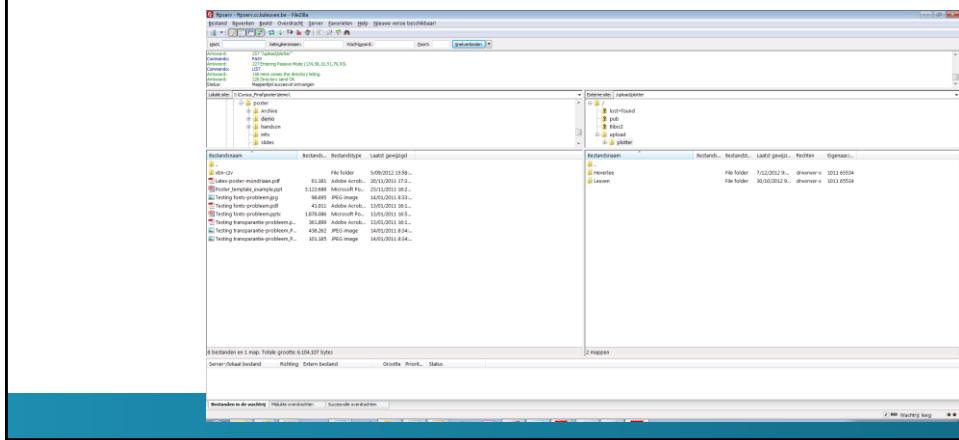
- **using Windows Explorer**
  - Open Windows Explorer  
[ftp://ftpserv.cc.kuleuven.be/upload/plotter/... .](ftp://ftpserv.cc.kuleuven.be/upload/plotter/)
  - Open another windows explorer and select the file to transfer, drag and drop this file into the appropriate folder.



## Transfer PDF file

- **using Filezilla**

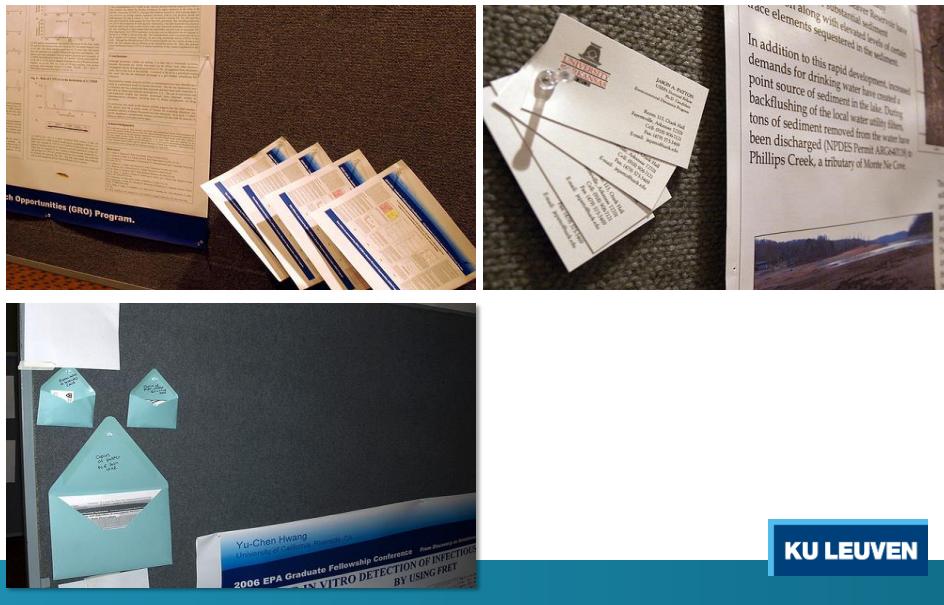
<ftp://ftpserv.cc.kuleuven.be/upload/plotter>



## Some remarks

- Not suited for large volumes (max. 10 copies)
- Delivery:
  - Mail is sent when print is finished
    - usually within 24h – when busy within 3 days
    - In case of a correct request
  - Contact in case of problems
- Sorry, no full size proofs
  - Print A4 and proof

## Poster session: tips



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## Troubleshooting



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## Prevent problems

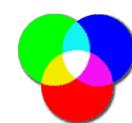
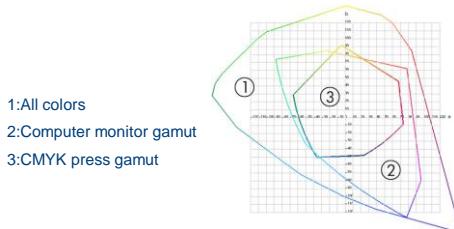
- Try to use only 1 computer to develop your poster.
- Stick with 1 software version.



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## Color

- The color on the computer screen is not the color that will be printed!
- Range screen > range printer



- Red, Green, and Blue are "additive colors"
- Cyan, Magenta and Yellow are "subtractive colors".



## No color management

- HP designjet have the HP Embedded Spectrophotometer
- Consistent colors
- No additional calibration software is available, nor calibrated monitor. – we are working on it

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## PDF – Microsoft 2010 - saveas

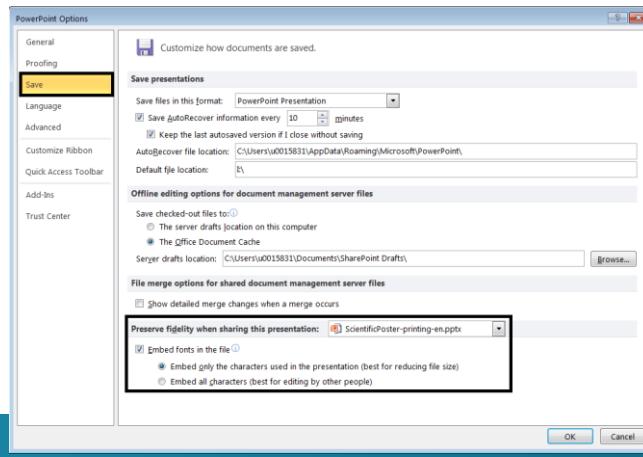


- Click the **File** tab.
- Click **Save As**.
- In the **File Name** box, enter a name for the file, if you haven't already.
- In the **Save as type** list, click **PDF (\*.pdf)**.
  - If you want the file to open in the selected format after saving, select the **Open file after publishing** check box.
  - Click **Standard (publishing online and printing)**, since your poster requires high print quality.
- Click **Save**.

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## Font substitution

- Embed the fonts in your PowerPoint
- Click the **File** tab.
- Click **Options**.



## Fonts enclosed?

The diagram illustrates the difference in font appearance and file size when fonts are embedded. The left side shows a blue box with the text 'TESTING FONTS' repeated three times in various black fonts. The right side shows a grey box with the same text, but it appears larger and bolder, indicating that the fonts have been successfully embedded, which often results in larger file sizes.

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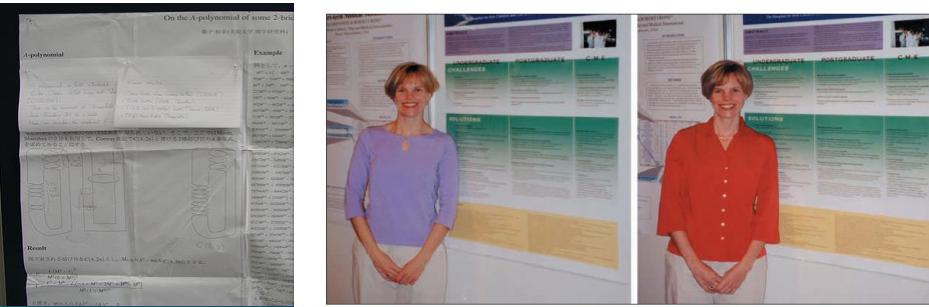
# Scientific Posters

presentation

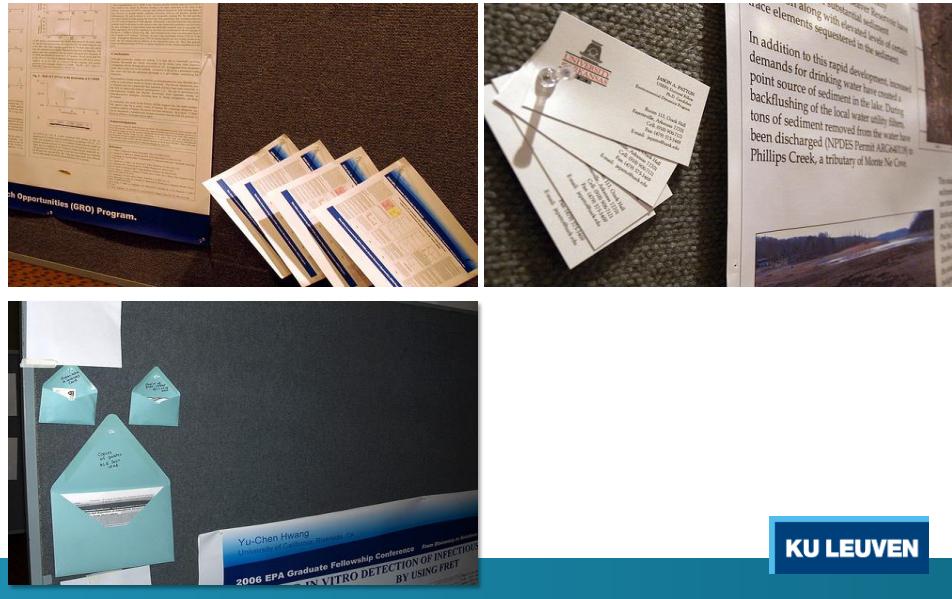


## Poster session: tips

- Transport poster
  - Carrying case
  - hand-luggage
  - Cissors, tape
- take pdf file
- Handout (poster, paper)
- Business card
- Candy?!
- Dress?!



## Poster session: tips



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## Poster session: presentation



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## handouts

- Small version of poster?
  - Every word must be readable on A4
- More detailed write-up
  - Consider 2 sided with small poster one side – write up on back

Taken from N. Clark : *Creating Professional Posters* (FSU – college of medicine)



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# Scientific Poster

## SOS poster – some design tips



### A day in the life of

- follow Steve Hamblin in his poster adventure  
[winawer.org/blog/2012/07/09/memoir-of-an-academic-poster/](http://winawer.org/blog/2012/07/09/memoir-of-an-academic-poster/)  
read also [winawer.org/blog/2012/08/11/memoir-of-an-academic-talk/](http://winawer.org/blog/2012/08/11/memoir-of-an-academic-talk/) a talk is not a poster!)
- what if it goes wrong?  
[scienceblogs.com/mikethemadbiologist/2011/05/27/some-advice-for-the-lonely-stu/](http://scienceblogs.com/mikethemadbiologist/2011/05/27/some-advice-for-the-lonely-stu/)
- Field Guide to Scientific Conferences: an Ecological View  
[rrresearch.fieldofscience.com/2012/04/conference-social-skills.html](http://rrresearch.fieldofscience.com/2012/04/conference-social-skills.html)
- An underwhelming experience  
[gjmorris.com/2012/02/05/getting-over-an-underwhelming-poster-presentation-experience/](http://gjmorris.com/2012/02/05/getting-over-an-underwhelming-poster-presentation-experience/)
- Poster designing: a warm welcome to Hell!  
[blogs.warwick.ac.uk/researchexchange/entry/poster\\_designing\\_a/](http://blogs.warwick.ac.uk/researchexchange/entry/poster_designing_a/)
- Tip of Curtis Huttenhower, start from a template pimp it  
[www.huttenhower.org/content/welcome-and-creating-scientific-poster](http://www.huttenhower.org/content/welcome-and-creating-scientific-poster)

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## Sources: websites

- Colin Purrington  
[colinpurrington.com/tips/academic/posterdesign](http://colinpurrington.com/tips/academic/posterdesign)
- George Hess, Kathryn Tosney, Leon Liegel  
[www.ncsu.edu/project/posters](http://www.ncsu.edu/project/posters)
- Zen Faulkes blog  
[betterposters.blogspot.com](http://betterposters.blogspot.com)
- Cornell  
[www.cns.cornell.edu/documents/ScientificPosters.pdf](http://www.cns.cornell.edu/documents/ScientificPosters.pdf)
- NASA  
[www.waspacegrant.org/for\\_students/student\\_internships/wsgc\\_internships/posterdesign.html](http://www.waspacegrant.org/for_students/student_internships/wsgc_internships/posterdesign.html)

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## Sources

- Articles
  - Steven Block, Do's and Don'ts of Poster Presentation, Biophysical Journal, Volume 71, December 1996, pp 3527-3529  
[www.stanford.edu/group/blocklab/dos%20and%20dnts%20of%20poster%20presentation.pdf](http://www.stanford.edu/group/blocklab/dos%20and%20dnts%20of%20poster%20presentation.pdf)
  - The scientist  
[the-scientist.com/2011/09/01/poster-perfect](http://the-scientist.com/2011/09/01/poster-perfect)
  - Nature  
[www.nature.com/naturejobs/science/articles/10.1038%2Fnj7387-113a](http://www.nature.com/naturejobs/science/articles/10.1038%2Fnj7387-113a)
- Professional poster printing (tips + templates)
  - [blog.postersession.com](http://blog.postersession.com)
  - [www.posterpresentations.com](http://www.posterpresentations.com)
  - [www.makesigns.com/SciPosters\\_Home.aspx](http://www.makesigns.com/SciPosters_Home.aspx)
  - [phdposters.com](http://phdposters.com)
- Poster journal
  - [www.eposters.net](http://www.eposters.net)
  - [www.epostersonline.com](http://www.epostersonline.com)

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## What's next?

- QR code
- Tablet spot



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## What's next?

- Eposter
- Youtube
- Prezi



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# What's next?

- Infographics

**Global sourcing shouldn't cost us the Earth**

**1 INTRODUCTION**  
How can business enhance corporate sustainability and at the same time increase its competitive advantage? "Business cannot succeed in societies that fail to enhance the social dimension of the RPS".

**2 RESEARCH AIMS**  
"Look at how businesses gain competitive advantage through sustainable development and how to test the relationship between the RPS & corporate social management".

**3 METHODS**  
Corporate sustainability will be mainly approached through qualitative research methods and to enhance the social dimension of the RPS.

**4 FINDINGS**  
**Business cannot succeed in societies that fail to enhance the social dimension of the RPS.**

**Business cannot succeed in societies that fail to enhance the social dimension of the RPS.**

**CONTACT:** Michael Deligne • TEL: +44 7802 218 833 • EMAIL: mdeligne@kuleuven.be

**Design Research**

A strong research orientation allows Quickfire to apply design tools and methodologies to different domains such as products, services, environments, services and communication.

**What can Design Research do for you?**

Design Research is a process of understanding what product qualities are most important to consumers and how these needs can be met through the design of products or services.

**Contextual Inquiry**

It is used for better insight in user needs and requirements. It is a process of observing people in their natural environment, asking them questions and observing their behaviour. This technique is used to understand the needs of target market.

**Ethnography**

It is a research method of observing and documenting everyday life in a community or culture, or part of it. It is a method of collecting data by observing and interacting with people in their natural environment. This technique is used to understand the needs of target market.

**Design Probes**

Design Probes are a series of experiments to explore the potential of new ideas. They are used to generate new ideas and concepts. These techniques are used to understand the needs of target market.

**Experience Scenario**

It is a scenario of a typical user experience. It is used to understand the needs of target market.

**Participatory Design**

User involvement starts at the planning stage. It is used to understand the needs of target market.

**Personas**

- A persona is a user archetype you can use to help guide decisions about product design, user interface design, and user experience design.
- Personas are synthesized using data from real users, user groups, user surveys, user interviews, and user testing.
- It gives a common language and experience to design engineers and marketing.
- The use of Personas helps coordinate the approach of each group on user-centered development and user-centered design.

**OBserve**, **TALK**, **CO-DESIGN**, **USE**, **LEARN**, **MODEL**, **RECORD**

<http://graphicdesign.stackexchange.com/questions/9452/examples-of-good-academic-poster-design>

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# Design

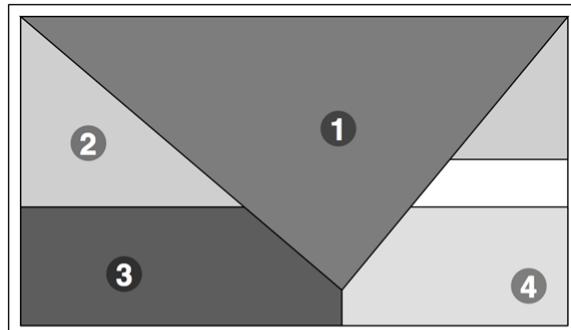
1425

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## *My posters always look terrible--I'm just not creative!*

- Many scientists claim they're not "artsy" enough to make a good poster.
- But the honest truth is that this is still an *academic* poster.
  - You're there to present your science, not your creativity.
  - If the goal is simply to not look terrible, there are some simple layout guidelines you can follow to accomplish that.
- Taken from Katie Everson: [www.kmeverson.org/academic-poster-design.html](http://www.kmeverson.org/academic-poster-design.html)

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**1 Main Focus Area**  
Location of research fundamentals: Title, Abstract, Results, Conclusion.

**2 Secondary Emphasis**  
Location of important info: Intro, Results, Summary

**3 Supporting Area**  
Location of supporting info: Methods, Discussion

**4 Final Info Area**  
Location of supplemental info: References, Acknowledgments, Personal information

[http://writing.wisc.edu/Handbook/presentations\\_poster.html](http://writing.wisc.edu/Handbook/presentations_poster.html)

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## Principles of Graphic Design

Source:

- [en.wikipedia.org/wiki/Design\\_elements\\_and\\_principles](http://en.wikipedia.org/wiki/Design_elements_and_principles)
- [www.johnlovett.com/test.htm](http://www.johnlovett.com/test.htm)
- Graphic Design Tutorial | eHow.com
- Williams, Robin. *The Non-Designer's Design Book: Design and Typographic Principles for the Visual Novice*. 2<sup>nd</sup> edition. Berkley, California: Peachpit Press, 2004.

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## Principles of Graphic Design: CRAP

- **Contrast:**  
“If two items are not exactly the same, then make them different. Really different.”
- **Repetition**  
“Repeat some aspect of the design throughout the entire piece.”
- **Alignment**  
“Nothing should be placed on the page arbitrarily. Every item should have a visual connection with something else on the page.”
- **Proximity**  
“Group related items together... so the related items are seen as one cohesive group rather than a bunch of unrelated bits.”

<http://www.nhsdesigns.com/principles/>

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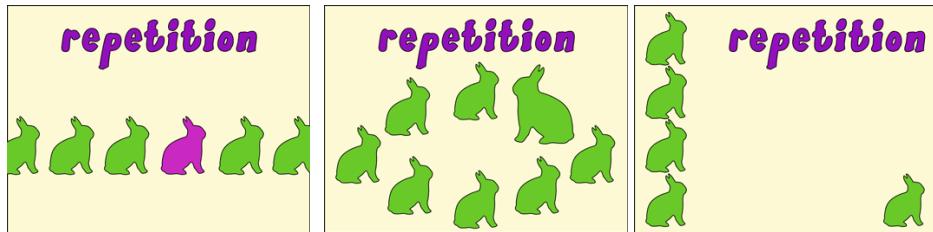
# Principles of Graphic Design

- **Contrast:** contrast in size, color, ...
  - make a visual splash where parts of the page stand out.

<h1>ANOTHER NEWSLETTER!</h1> <p>J A N U A R Y      F I V E      2 0 0 9</p> <p><b>Exciting Headline</b></p> <p>Want pants? Stern dame worded last ad! Get her started on Guilty Looks. Guilty Looks life! Inner laude condage saturated older shirs' adolescence. Firmier bag than a guinea pig! Guilty Looks' older murder tell! Settler gone entity. Ronts off bigger shell.</p> <p><b>Thrilling Subhead</b></p> <p>"Guilty Looks!" crater murder angularity, "Honmy Temra area garnet asthma actuators" quipz quipz! Grotte door flustered! "Horn"! "Horn"!</p> <p>"Wire nut, murderer!" wined Guilty Looks, has done peony tension zone murderer's scalcutins.</p> <p>"Caveous! Knit ledge an eluctus bear"! Ronts' eye cyphons melanose prufle. Laule guila en' kipper war fire! denter canster am'non! an state other! Ronts! Dots! Ronts' is much too denture fukey! (kugel!)"</p> <p><b>Another Exciting Headline</b></p> <p>Wat, pimpls! Guineas' winter! doe war' upper simile swamp tumpon toe dice. Debt's! Jeet! hormone nurturing.</p>	<h1>Another Newsletter!</h1> <p>J A N U A R Y      F I V E      2 0 0 9</p> <p><b>Exciting Headline</b></p> <p>Want moaning, Guilty Looks disepater murster, an win entity Ronts. For lung, and a ront startin' on Guilty Looks' youth! yountz calls can' mordified laude condage inhibited buoy rull firmly off beforer! "Puddean" (Home, plump, full, round, or well-filled, as a person). Murder Beer, an Laule Bone Beer. Disk moaning, older heens has' iest! ier condage, tattered laude baskinings, an half-mast! "Denturist" (A dentist who practices on fresh teethers). Guilty Looks' ranter dough ball! hough! off, curse, non-golf! Ronts' been, eoda yule! laude god! Ronts' bad! entity Ronts' herself!</p> <p><b>Boring Subhead</b></p> <p>"Guilty Looks!" crater murster angularity, "Honmy Temra area garnet asthma actuators" quipz quipz! Grotte door flustered! "Horn"! "Horn"!</p> <p>"Wire nut, murderer!" wined Guilty Looks, has done peony tension zone murderer's scalcutins.</p> <p>"Caveous! Knit ledge an eluctus bear"! Ronts' eye cyphons melanose prufle. Laule guila en' kipper war fire! denter canster am'non! an state other! Ronts! Dots! Ronts' is much too denture fukey! (kugel!)"</p> <p>Ding tralor sup inner muddle-eash bolt, which'z too colded. Butter esp' inner tawny! Laule wort sup inner tawny! Guilty Looks' ailed off top. Dingy rudds' siue cheers—was' anomalous chees; wan muddle-eash chees, wan tawny</p> <p>Want moaning, Guilty Looks' disepater murster, an win entity Ronts. For lung, and a ront startin' on Guilty Looks' youth! yountz calls can' mordified laude condage inhibited buoy rull firmly off beforer! "Puddean" (Home, plump, full, round, or well-filled, as a person). Murder Beer, an Laule Bone Beer. Disk moaning, older heens has' iest! ier condage, tattered laude baskinings, an half-mast! "Denturist" (A dentist who practices on fresh teethers). Guilty Looks' ranter dough ball! hough! off, curse, non-golf! Ronts' been, eoda yule! laude god! Ronts' bad! entity Ronts' herself!</p> <p><b>Boring Subhead</b></p> <p>"Honmy Eggle! Inner darning runn, stud time! Bellie fuller soap—an grade bag! older soos, wan muddle-eash! hell, an half-mast! "Denturist" (A dentist who practices on fresh teethers). Guilty Looks' ranter dough ball! hough! off, curse, non-golf! Ronts' been, eoda yule! laude god! wim! philisity! entity Ronts' herself!</p> <p>"Augh!" crater gal, "Debs' soop's toe—hurt!"</p> <p>Dingy tralor apx inner muddle-eash bolt, which'z too colded. Butter esp' inner tawny! Laule wort sup inner tawny! Guilty Looks' ailed off top. Dingy rudds' siue cheers—was' anomalous chees; wan muddle-eash chees, wan tawny</p>
--	--

# Principles of Graphic Design

- **Repetition**
  - Repetition focuses on consistency.
  - Repetition comes through unity and consistency in font, alignment, headings, etc



<http://www.nhsdesigns.com/principles/repetition/poster-assignment.php>

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## Principles of Graphic Design

- **Alignment:** for text as well as for graphical objects.  
Gives a neat, orderly design
- Alignment focuses on unity.
- There needs to be something that ties together all of the elements of the page visually.

The image shows three examples of alignment:

- Left:** A yellow square containing the word "alignment" in purple. Below it are two columns of green leaf-like shapes and orange star-like shapes, all aligned vertically.
- Middle:** A white page titled "Business Plan for The Shakespeare Papers" by Patricia Williams, dated February 25. The text is aligned to the left.
- Right:** A white page titled "Business Plan for The Shakespeare Papers" by Patricia Williams, dated February 25. The title is centered, and there are vertical blue bars on the left and right margins.

[www.nhsdesigns.com/principles/alignment/](http://www.nhsdesigns.com/principles/alignment/)

## Principles of Graphic Design

- **Proximity:** focuses on clarity in organization.
- Related items placed in close proximity to each other appear as one visual unit, rather than several unique items.

The image shows two examples of proximity:

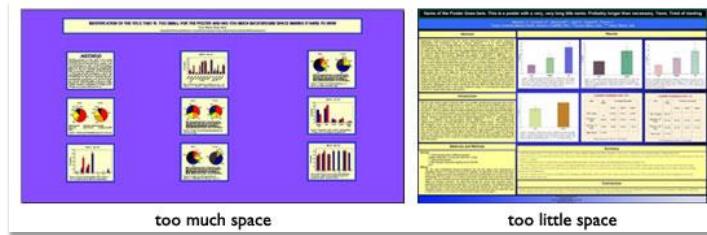
- Left:** A white card titled "My Flowers" listing various flower names: Marigold, Pansy, Rue, Woodbine, Daisy, Cowslip, Carnation, Primrose, Violets, and Pink.
- Right:** A white card titled "My Flowers" listing the same flower names. To its right are two sets of three black vertical bars each, arranged in a grid pattern.

[www.nhsdesigns.com/principles/proximity/](http://www.nhsdesigns.com/principles/proximity/)

[des1012.blogspot.com/2008/06/design-elements-principles-summary.html](http://des1012.blogspot.com/2008/06/design-elements-principles-summary.html)

## Principles of Graphic Design

- **White space:** can be used to give some structure. Be consistent: same spacing around images, charts, ...



<http://www.ncsu.edu/project/posters/NewSite/>

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## SOS Poster



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## SOS Poster

### Ideal

- Be seductive
- Creative communication of research
- Clear structure (flow) of information
- Images and charts (visuals) instead of text
- Initiate communication
- Handouts can help

### Avoid

- Paper on a poster format
- Too much text
  - Only the essentials
  - Remove unnecessary details
- Excess of color / combinations
- Intense background

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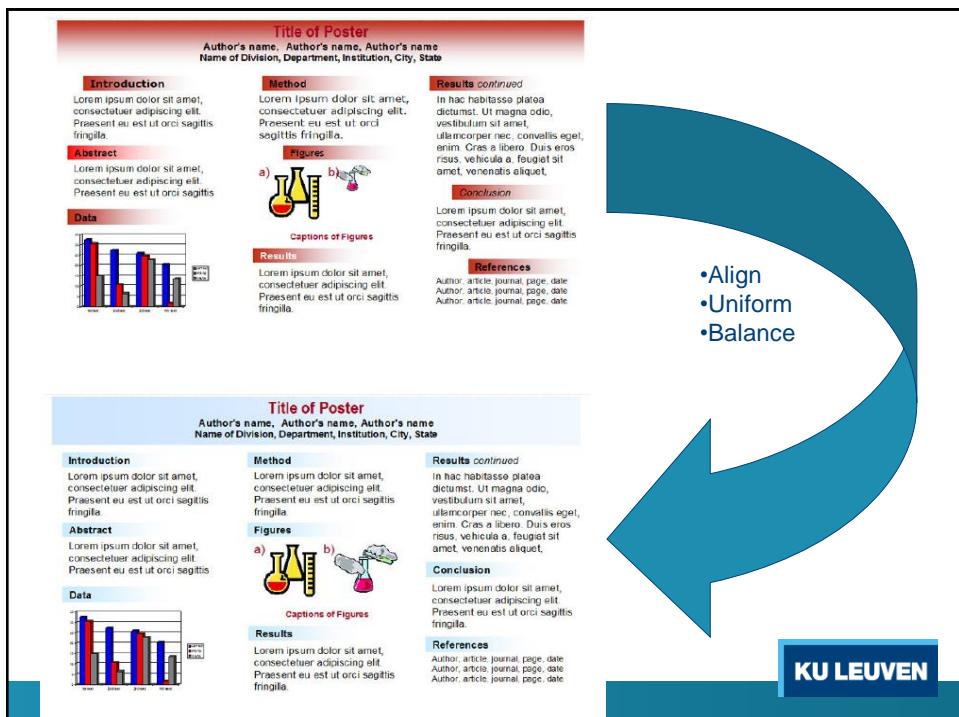
## A poster is not a paper

### My Poster is a paper



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# A poster is not a slide set



The image shows two posters side-by-side, each with a dark blue header and footer.

**Left Poster:**

- Header: "A randomized controlled trial of the use of aerobic and strength training over a 16-week cardiac rehabilitation exercise programme".
- Section: "Protocol".
- Section: "Methods".
- Section: "Results".
- Section: "Conclusion".
- Section: "References".
- Image: A photograph of people exercising.
- Figure: A bar chart showing data.

**Right Poster:**

- Header: "A randomized controlled trial of the use of aerobic and strength training over a 16-week cardiac rehabilitation exercise programme".
- Section: "Protocol".
- Section: "Methods".
- Section: "Results".
- Section: "Conclusion".
- Image: A photograph of people exercising.
- Figure: A bar chart showing data.

**Bottom:**

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<http://www.fes.uwaterloo.ca/computing/help/posterdesign/PosterCreation.pdf>

## Examples (CCMR Cornell Center for Materials Research)

**Left Poster:**

- Header: "Fusing <sup>18</sup>FDG-Hybrid PET To CT Images Significantly Alters Treatment Planning In The Radical Treatment Of Non-Small Cell Lung Carcinoma".
- Section: "Abstract".
- Section: "Problem".
- Section: "Potential of FDG-Hybrid PET for Radiation Therapy Planning".
- Section: "Impact of FDG-Hybrid PET on Patient Management".
- Section: "Conclusion".
- Image: A photograph of a lung scan.
- Figure: A graph showing data.

**Right Poster:**

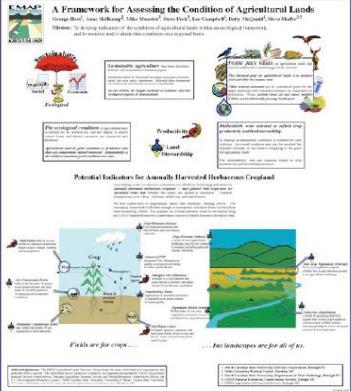
- Header: "A Large-Scale Public Library Renovation in Taiwan".
- Section: "Abstract".
- Section: "Introduction".
- Section: "Methodology".
- Section: "Conclusion".
- Image: A photograph of a library interior.
- Figure: A diagram showing a flowchart.
- Image: A photograph of a library exterior.

- Contrast
- Different backgrounds distract

- Trop is Teveel
- exhausting

## Examples (CCMR Cornell Center for Materials Research)

- Where to start?



- Careful with standard PowerPoint background

**Snook Growth in Habitats with Differing Abiotic Variability**

**PROPOSED OBJECTIVE:**  
To create a useful tool for assessing potential stocking habitats based on degree of variability in water quality.

- Snook are a popular game fish found in the estuarine creeks of Florida.
- Snook population has been on the decline due to overfishing and habitat degradation.
- Nutrients in coastal marsh inlets are currently underway and lack sufficient preliminary research.
- Abiotic variability is a potential factor of these declines.
- Temperature, dissolved oxygen and salinity might play influential roles in the survivorship of the juvenile snook.

**STUDY SITES:**  
North Creek Lower (High Variability)  
North Creek Middle (Medium Variability)  
North Creek Upper (Low Variability)

**METHODS:**

1. Aerial photographs were obtained from the USGS website.
2. Aerial photographs were digitized using ArcGIS 9.3 software.
3. Water samples were collected in the marsh inlets using a YSI ProPlus 6500 handheld meter.
4. Data was analyzed using SPSS 18.0 statistical software.

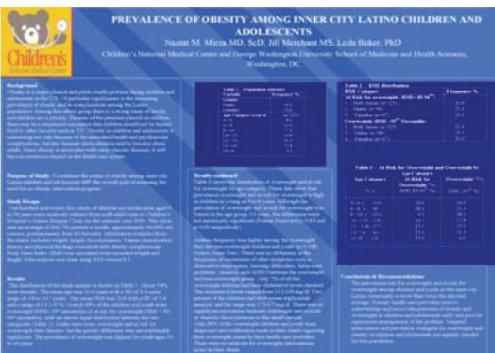
**RESULTS:**

Habitat	Nutrient Growth	Dissolved Oxygen (mg/L)	Salinity (‰)	Temperature (°C)
North Creek Lower (High Variability)	2.21	6.22	32.31	25.64
North Creek Middle (Medium Variability)	4.01	6.28	32.28	26.35
North Creek Upper (Low Variability)	5.89	6.35	32.35	26.31

**CONCLUSION:**

- Snook in habitats with higher growth have a median degree of abiotic variability.
- Stock enhancement projects will be more efficient by releasing juvenile snook primarily in estuary habitats with a median degree of abiotic variability.

## Examples (CCMR Cornell Center for Materials Research)



- Dark background
- Contrast
- Gradient

**LESSONS LEARNED FROM AIRWAY PRESSURE RELEASE VENTILATION (APRV)**

Lorraine L. MPP, MD, FCCP, FRCR, FRCMP  
Medical College of Pennsylvania-Hahnemann University  
Department of Surgery & Emergency Medicine®, Philadelphia, PA USA

**INTRODUCTION:**

Continuous positive airway pressure (CPAP) as a biphasic ventilation has been previously demonstrated to be a useful modality for patients with an acute respiratory distress syndrome (ARDS). An APRV is a biphasic ventilation cycle consisting of a breath hold followed by a breath. APRV has been shown to improve oxygenation in patients with ARDS.

**METHODS:**

Consecutive patients transferred from either volume or pressure regulated ventilation to APRV (n=10) at Pennsylvania Hospitalization (PH) in a tertiary care medical ICU were included. APRV settings were set to be isovolumic (p<sub>0</sub>) of 40 cmH<sub>2</sub>O above the prior plateau pressure and the expiratory pressure (p<sub>e</sub>) of 80 cmH<sub>2</sub>O below the prior plateau pressure. The plateau pressure was determined by the time to reach 95% of the maximum inspiratory pressure in the first breath. Initial APRV settings were set to a p<sub>0</sub> of 40 cmH<sub>2</sub>O and a p<sub>e</sub> of 80 cmH<sub>2</sub>O. APRV settings were adjusted to ensure 100% oxygen and 100% peak flow. All APRV settings were included prehospitalized patients. Data before and after APRV were compared using a two-tailed paired t-test or Chi-square as appropriate; significance was assumed for  $p < 0.05$ .

**RESULTS:**

Element	Value
No Hypoxia	100%
No Hypercapnia	12%
Time to p <sub>0</sub> (s)	0.2 ± 0.04
Time to p <sub>e</sub> (s)	0.2 ± 0.04
Mean $\text{pCO}_2$ (mmHg)	32.2 ± 1.5
Mean $\text{pO}_2$ (mmHg)	101.5 ± 1.5
Mean change in $\text{V}_E$ ( $\text{L} \cdot \text{min}^{-1}$ )	-0.9 ± 0.9

**Transport Safety:**



**Complications:**



**CONCLUSIONS:**

1. APRV is a safe modality made for hypoxic or hypercapnic respiratory failure and requires a significantly lower  $\text{V}_E$  than conventional ventilation.
2. APRV settings are similar to those of CPAP, are strong indicators of pulmonary edema in patients on APRV. Routine end-tidal  $\text{CO}_2$  monitoring is recommended.
3. Preparation for safe intra-hospital transport may be key to the  $\text{p}_{\text{aO}_2}$  required for oxygenation and ventilation. Patients requiring a  $\text{p}_{\text{aO}_2} > 20$  on 100% should be transported on the ventilator.

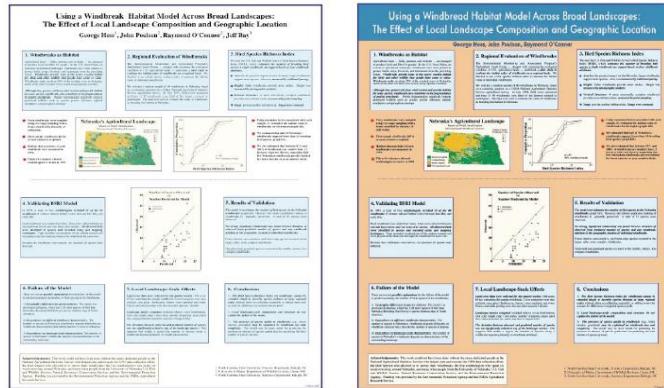
13

## Examples (CCMR Cornell Center for Materials Research)

## Examples (CCMR Cornell Center for Materials Research)

## Examples (CCMR Cornell Center for Materials Research)

- Color can help or not?



KU LEUVEN

**A PROSPECTIVE, LONG TERM, RANDOMIZED COMPARISON OF THE BIPOLE PLASMA VAPORIZATION OF THE PROSTATE, MONOPOLAR AND BIPOLE RESECTION IN CASES OF AVERAGE SIZE PROSTATES**

Bogdan Gavrilete, Razvan Moltescu, Florin Stanescu, Dragoș Georgeșcu, Marian Jecu, Cristian Moldoveanu, Petrușor Gavrilete  
Department of Urology, "Saint John" Emergency Clinical Hospital, Bucharest, Romania

**ABSTRACT**

Introduction & objective: A prospective, long term, randomized trial was performed aiming to compare the bipolar plasma resection of the prostate (BPV), the bipolar transurethral resection of the prostate (TURP) and the monopolar transurethral resection of the prostate (M-TURP).

Materials & methods: A total of 500 benign prostatic hyperplasia (BPH) patients with prostate volume between 30 and 60 ml, maximum flow rate (Qmax)= 10 ml/s and International Prostate Symptom Score (IPSS)= 19 were included in the study. All patients were evaluated preoperatively and at 6 months, 1, 3, 6, 12, 18, 24 and 30 months post-surgery by IPSS, Qmax, quality of life score (QoL) and post voiding residual median urinary volume (RV).

Results: The mean operation time (29.7 versus 82.1 and 95.6 minutes), catheterization period (23.5 versus 40.5 and 45.5 hours), hospital stay (2.1 versus 3.2 and 3.6 days), intraoperative blood loss (100 versus 200 and 250 ml), mean hemoglobin (0.5 versus 1.2 and 1.6 g/dl), intraoperative bleeding (1.8% versus 2% and 13.0%) and of early postoperative bleeding (2.2% versus 4.7% and 13.2%) were significantly lower in BPV group. The risk of early postoperative complications (2.2% and 4.7% versus 13.2%) and blood transfusion (1.2% and 1.6% versus 11.2%) were significantly lower in BPV group. No significant differences were found in the postoperative prostate volume concerning IPSS and QoL.

Conclusion: BPV displayed superior efficacy, reduced perioperative morbidity and faster postoperative recovery compared to M-TURP and TURP. Also, at mid-term follow-up, the initial treatment results were maintained. Thus, the postoperative prostate volume emphasized a similar evolution regardless of the initial treatment.

Conclusion: BPV displayed superior efficacy, reduced perioperative morbidity and faster postoperative recovery compared to M-TURP and TURP. Also, at mid-term follow-up, the initial treatment results were maintained. Thus, the postoperative prostate volume emphasized a similar evolution regardless of the initial treatment.

**METHODS**

(Preoperative and 1, 3, 6, 12, 18, 24 and 30 months evaluation)

BPV Bipolar TURP Monopolar TURP IPSS Qmax RV

**OBJECTIVES**

To evaluate a prospective, long term, randomized comparison between the bipolar plasma vaporization (BPV), monopolar and bipolar transurethral resection of the prostate (TURP) with regard to surgical efficacy, complication rate and follow-up results.

**RESULTS**

	BPV	TURP	Monopolar TURP
Operative time (min)	29.7	82.1	95.6
Catheterization time (hours)	23.5	40.5	45.5
Hospital day (days)	2.1	3.2	3.6

In the BPV and TURP groups, significantly lower 22.9% and 4.7% versus 13.2% and 1.8% postoperative prostate volumes emphasize a similar evolution.

	BPV	TURP	Monopolar TURP	
Mean hemoglobin (intraoperative)	0.8	1.2%	1.3%	13.4%
Wristel TURP	1.3	0.3%	2.1%	11.2%
Monopolar TURP	1.6	13.8%	9.4%	10.6%

**CONCLUSIONS**

BPV represents a valuable endoscopic treatment alternative for BPH patients, with superior efficacy and satisfactory complication rate.

The long term follow-up emphasized durable improvements in terms of postoperative parameters for BPV, with significant progresses by comparison to monopolar and bipolar TURP.

KU LEUVEN

**Purpose:**  
To study iron protein biochemistry from the perspective of the iron Protein = Ligand

**Techniques:**  
Spectroelectrochemistry  
UV-Visible Spectroscopy  
Fluorescence Spectroscopy  
Difference Spectroscopy  
Stopped-Flow Kinetics  
SUPREX

**Inorganic Biochemistry of Iron Proteins**  
Jared J. Heymann, Claire J. Parker Siburt, Katherine D. Weaver,  
and Alvin L. Crumbliss

**Duke University – Department of Chemistry – Durham, NC**

**The Iron Paradox**  
Iron is needed for nearly every living cell

**Iron Abundance in Humans**  
45-55 mg/day in humans  
70% is in hemoglobin  
0.1% in transferrin

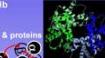
**Turnover of Transferrin (Iron = 28 mg)**  
Time for being transported to the bone marrow for hemoglobin synthesis  
Bacteria can also target Tf as a source of iron

**Proteins act as the 1<sup>st</sup> & 2<sup>nd</sup> coordination shell of iron and can modulate the kinetics and thermodynamics of reaction.**

**TRANSFERRIN**  
A mechanistic study of the iron release by receptor-bound transferrin using spectroelectrochemistry

**FERRIC BINDING PROTEIN**  
Role of a synergistic anion on modulating iron uptake in a bacterial transferrin by pathogenic bacteria: A study in kinetics and thermodynamics

**HEMOGLOBIN**  
Effects of subunit cross-linking on hemoglobin oxidation states determined by spectroelectrochemistry

**Chemically modified Hb**  
-Pyridylation  
-Pegylation  
-Conjugation to polysaccharides & proteins  


**Like Tf, FbpA requires a synergistic anion to facilitate tight ion binding, which may play a role in rate and rate of Fe reduction.**

**1. FbpA acts as an anion binding protein**  
 $\text{apo-FbpA-X} \rightarrow \text{FbpA-X}$

**2. FbpA-X can exchange anions**  
 $\text{FeFbpA-X} + \text{Y}^- \rightleftharpoons \text{FeFbpA-Y} + \text{X}^-$

**Anion identity modulates the Fe binding rate**

**Combined Nernst Plot**  
 $\text{Fe}^{3+} + \text{FbpA-X} \rightleftharpoons \text{Fe}^{2+}\text{FbpA-X}$

**Combined Hill Plot**  
 $\text{E}_1 - \text{E}_{\text{red}} = \frac{RT}{4} \ln \left( \frac{\text{P}_{\text{O}_2}}{\text{P}_{\text{O}_2}^{\text{sat}}} \right)$

**Implications**  
Reengineering heme center not  
Drive for oxidation not  
Structural perturbations permit  
increasing heme capacity

**Transferrin**  
Transferrin is a glycoprotein that carries iron between the liver and other tissues.  
It binds to a receptor on the surface of cells.  
The iron is released from the protein by reduction of the iron(III) to iron(II).  
This process is called "iron release".

**Hypothesis:** When transferrin binds to a receptor, the iron is released from the protein by reduction of the iron(III) to iron(II). This process is called "iron release".

**Experimental:**  
Electrochemical titrations are done on purified Tf in an O<sub>2</sub>-free buffer to measure the variation in vesicle size as the anion is oxidized or reduced by spectroelectrochemistry. This is a non-invasive technique because only a small sample volume is required.

**Results:**  
Initially, the anion is shown to be a strong electron acceptor. As the anion is reduced, the electron transfer becomes more difficult, indicating that the anion is becoming a stronger electron donor.

**Conclusion:**  
Iron loaded Tf binds to the human receptor and is taken up by the cell by endocytosis. Tf reduces the iron to the ferrous state, which is then transported to the cytoplasm. The iron is then used for biological reactions.

**Structural Fe binding site similarity between Tf and FbpA**

**Using spectroelectrochemistry, we find a positive shift in redox potential of the Tf-1<sup>st</sup> NTCR receptor binding**

**Iron-loaded Tf binds to the human receptor and is taken up by the cell by endocytosis. Tf reduces the iron to the ferrous state, which is then transported to the cytoplasm. The iron is then used for biological reactions.**

**Transferrin receptor is capable of shifting the reduction potential into the range of the first NTCR receptor binding.**

**Iron transport can occur by a reduction mechanism or an oxidation mechanism. The thermodynamic stability and reactivity are both varied by the identity of the synergistic anion. Kinetically linked exchange is possible in the diverse anionic environment.**

**Heymann, Weaver, Mester, and Crumbliss (2000) unreported**  
Keller, Mester, and Crumbliss (2000) *J. Inher. Metab. Dis.* 23: 905-16  
Roulet, Power, Dhungana, Weissen, Mester, Crumbliss and Fitzgerald (2004) *Biochem. J.* 385: 173-74  
Deng, Teng, Li, Yang, Weaver, Alvin, Mester, and Crumbliss (2004) *J. Am. Chem. Soc.* 126: 5655-64  
Prashant, Teng, Alvin, Weaver, and Crumbliss (2004) *J. Am. Chem. Soc.* 126: 205-14

**Iron-oxo species formation in the presence of anions**

**Oxygen Transport**  
Anemia  
Hemoglobin  
Heme oxygenase  
Low oxygen affinity, partial pressure increased in HbA<sub>2</sub>  
Normal pH tolerance range  
T-state stabilization

**Modified Hb Conclusions**  
Oxygen Transport  
Anemia  
Heme oxygenase  
Low oxygen affinity, partial pressure increased in HbA<sub>2</sub>  
Normal pH tolerance range  
T-state stabilization

**Silvius, Henkens, Weaver, Dennis, Praveen, and Alvin (2006) unreported**  
Talwar, Bhowmik, and Crumbliss (2002) *Mol. Cell. Biochem.* 233: 167-206  
Rees, 2006 *Crit. Rev. Clin. Lab. Sci.* 37: 279-319

# MÉCANIQUE QUANTIQUE EN CHUTE LIBRE

## Vers des mesures ultra-précises des mouvements

**I.C.E.** Interférométrie à source Cohérentes pour applications dans l'Espace

**INSTITUT d'OPTIQUE GRADUATE SCHOOL**

**ONERA THE FRENCH AEROSPACE LAB**

**l'Observatoire de Paris SYRTE** Systèmes de Référence Temps Espace

**cnes** CENTRE NATIONAL D'ÉTUDES SPATIALES

**Ondes et particules**

- Particules = boules de billard
- Ondes = vagues

2 particules au même endroit s'additionnent :  
On observe toujours 2 particules.

2 ondes interfèrent : La superposition d'ondes peut être nulle.

**Mesures Interférométriques**

On peut mesurer le décalage relatif acquis par les 2 ondes en regardant l'amplitude de leur interférence.

**Interferometrie atomique**

- Les atomes sont des très petites ondes à température ambiante,
- Mais quand on les refroidit :

⇒ A très basses températures les atomes se comportent comme des ondes, on peut les utiliser en interférométrie.

**Mesures de mouvement par la chute de masses**

Pour mesurer l'accélération d'un avion, il suffit de regarder la chute d'un objet :

- Si l'objet semble immobile par rapport à l'avion, celui-ci chute avec l'accélération de la pesanteur.
- Si l'objet chute sur la droite, l'avion tourne à gauche.
- Si l'objet chute avec l'accélération de la pesanteur, l'avion a une vitesse constante.

**Accélérométrie atomique**

- Un nuage d'atomes est lâché en vol libre.
- On le sépare en deux paquets de vitesses initiales différentes par une impulsion laser.
- Deux autres impulsions lasers permettent de recombiner les paquets.
- Le décalage entre les deux trajectoires est lu par interférence

⇒ Cela permet de remonter à l'accélération du référentiel de l'expérience.

**KU LEUVEN**



## More Examples of Research Posters

Taken from:

<http://ps-spencer.posterous.com/perfect-posters>

**ProSci INCORPORATED**

# A heterologous yeast glycoprotein to target the glycans on HIV-1 gp120

Robert J Luskin<sup>1</sup>, Hu Fu<sup>1</sup>, Caroline Agrawal-Ganssmull<sup>2</sup>, Innocent Mboudjeka<sup>1</sup>, Wei Huang<sup>1</sup>, Fang-Hua Lee<sup>1</sup>, Lat-Xi Wang<sup>1</sup>, Robert W Doms<sup>2</sup>, and Yu Gang<sup>1</sup>

<sup>1</sup>ProSci Incorporated, Poway, CA 92064; <sup>2</sup>Department of Microbiology, University of Pennsylvania, Philadelphia, PA 19104; <sup>3</sup>Department of Biochemistry & Molecular Biology, University of Maryland School of Medicine, Baltimore, MD 21201

## Abstract

An as effective defense against the immune system as it is against gp120 with mannose carbohydrates to shield conserved peptide epitopes and possibly promote trans infection by gp120. We have identified a yeast protein, Pst1, a cluster of high mannose type glycans on gp120, revealing a conserved and highly exposed epitope that the glycoprotein binds to with high affinity. In addition to eliciting gp120-specific antibodies, we searched for endogenous glycoproteins that bind to gp120. Pst1, a 20 kDa protein, was discovered to bind to gp120 weakly in yeast 1 year, a strong detection of gp120 binding was enhanced by adding the Apm1 deletion to the Apm1 background, exposing vital residues to gp120. The binding of gp120 to Pst1 is  $\epsilon$ -2,3 sialic acid-dependent, and gp120 binds to Pst1 more strongly than to Apm1. However, optimal binding was found when Pst1 was expressed with homoglycosylation to gp120. This is the first report of gp120 binding to a yeast protein. The ability of Pst1 toward gp120 is unique, and the potential of Pst1 toward to induce gp120-like antibodies?

### Glycan Analysis of Pst1

**Pst1 and yeast surface glycans**

Yeast surface glycans were analyzed by MALDI-TOF mass spectra of N-glycans isolated from Pst1 in apm1Δ/Δ yeast (left) and Apm1/apm1Δ yeast (right).

**Pst1 binds to gp120**

Yeast surface gp120 binding was measured by surface plasmon resonance (SPR). Real-time SPR units for TM-Pst1 (left) and Yu.gp120 (right) binding to 259, 260, and 261 gp120 mutants ( $\mu$ g/ml) were measured by steady state fitting.

**Pst1 Affinity to 2G12**

Analysis of 2G12 affinity by surface plasmon resonance (SPR). Real-time SPR units for TM-Pst1 (left) and Yu.gp120 (right) binding to 259, 260, and 261 gp120 mutants ( $\mu$ g/ml) were measured by steady state fitting.

**Pst1 Inhibits 2G12 Neutralization**

Neutralization of HIV-1 pseudoviruses by 2G12 mAb. (A) Neutralization of HIV-1 pseudoviruses by 2G12 mAb. (B) Neutralization of HIV-1 pseudoviruses by TM-Pst1.

**Relative 2G12 Binding**

Comparison of 2G12 binding between Pst1 proteins and gp120. Western blot of gp120 binding to TM-Pst1, Yu.gp120, and Apm1/Pst1.

**TM-Pst1 inhibition of 2G12-mediated neutralization of HIV-1 pseudoviruses**

HIV-1 neutralization assay testing TM-Pst1 and Yu.gp120 against HIV-1 pseudoviruses at an approximate EC<sub>50</sub> concentration of 2G12 and 2G5 against HXB2 (top) and SF162 (bottom) pseudoviruses.

**Pst1 Inhibits DC-SIGN Binding**

TM-Pst1 inhibition of 2G12-mediated neutralization of HIV-1 pseudoviruses. HIV-1 neutralization assay testing TM-Pst1 and Yu.gp120 against HIV-1 pseudoviruses at an approximate EC<sub>50</sub> concentration of 2G12 and 2G5 against HXB2 (top) and SF162 (bottom) pseudoviruses.

**Pst1 Inhibits 2G12 Binding**

Western blot screening of yeast mutants for 2G12 binding. (A) Overview of the N-glycosylation pathway in *S. cerevisiae*. (B) Yeast surface gp120 binding to TM-Pst1. (C) 2G12 binding to Apm1/apm1Δ yeast (middle), 2G12 binding to Pst1 in Apm1 and Apm1/apm1Δ right).

**Pst1 Inhibits DC-SIGN Binding**

TM-Pst1 inhibition of 2G12-mediated neutralization of HIV-1 pseudoviruses. HIV-1 neutralization assay testing TM-Pst1 and Yu.gp120 against HIV-1 pseudoviruses at an approximate EC<sub>50</sub> concentration of 2G12 and 2G5 against HXB2 (top) and SF162 (bottom) pseudoviruses.

**FACS analysis of inhibition of gp120 binding to cell surface DC-SIGN**

Inhibition of JH4-I (gp120) binding to THP-1 cells expressing DC-SIGN by the indicated competitors (10  $\mu$ g).

**Induction of gp120-binding Abs**

Binding to JH4-I gp120

Binding to R2 gp120

Binding to R3A gp120

Induction of gp120-binding sera by immunization with TM-Pst1. One group of three rabbits were immunized with purified TM-expressed Pst1, and the resulting sera were tested for binding to 259 ng JH4-I (top), R2 (middle), and R3A (bottom) gp120 by ELISA.

## Conclusion

\* 2G12 binding to the glycoprotein Pst1 was discovered and improved by modification of yeast N-glycosylation.

+ Pst1 binding in yeast showed high affinity binding to 2G12, disrupted 2G12-mediated neutralization of pseudoviruses, and inhibited binding to DC-SIGN.

+ Pst1 expressing Man/GlcNAc induced gp120 binding sera in rabbits.

**Molecular Nanomachines**

Lorenzo T. Flores, Matthew J. Comstock, Armen Kirakosian, Jongweon Cho, Michael F. Crommie  
Department of Physics, University of California, Berkeley

**Abstract**

Using Scanning Tunneling Microscopy under UHV and temperatures between 90 K and 270 K, various functionalized porphyrin molecules are deposited onto the Au(111) and Si(111) surfaces. The work is in the preliminary stages; however, results in the Au(111) case indicate that the porphyrin molecule absorbs in herringbone corners. This observation is in accordance with other researchers.

**Nanomachines**

Different molecules and atoms, such as porphyrin and indium, can act as nanomachines. Their chemical compositions, as in the case of porphyrin, make them to be manipulated and manipulated. This would allow for molecular systems to be created on an atomic scale. In order to accomplish this we must first successfully deposit these molecules and atoms on a surface and investigate how they orient themselves on the lattice structure. After this is understood, research on manipulating the placement and activity of nanomachines can begin.

**Materials and Methods**

**Scanning Tunneling Microscope (STM)**

In order to view surfaces we use Scanning Tunneling Microscope (STM). An STM consists of two UHV (Ultra High Vacuum) chambers. One for preparation, the other for microscopy.

Two UHV chambers housing an STM

Diagram illustrating the STM setup. It shows two UHV chambers: a Load lock chamber and a Preparation chamber. The Preparation chamber contains a Cryostat, an STM tip, and a LEED/AES system. A cassette is used to hold the sample. Various components like springs, magnets, and vibration dampers are shown in the preparation area.

How the STM works

We apply a voltage between an atomically-sharp metallic tip (e.g. etched tungsten) and a conducting surface, then bring them to within a nanometer of each other. Electrons tunnel across the gap between the tip and the surface. How they tunnel up to the surface or down to the tip depends on the tip-to-sample gap. The tunneling current is exponentially dependent on the tip-to-sample gap. We use an electronic feedback system to maintain a constant tunneling current as we scan the tip across the surface. The feedback system also records the height necessary to keep a constant current across the surface.

Exact same surface, Si(111)  $12 \times 125 \text{ Å}^2$ , under different sample biases and the same tunneling current (0.5nA):

Scanning Tunneling Microscopy (STM) images showing the same Si(111) surface at three different sample biases: 2V, 1.5V, and -2V. The images show the characteristic herringbone pattern of the Si(111) surface.

Other STM uses

The STM can also be used for spectra analysis, in which the tip is held over one point. The sample bias is then increased and the tunneling current is monitored. The data obtained tells us what voltage levels overlap wave functions.

**Physics and Methods**

**Data Analysis**

In ideal conditions the images will appear the right way (see detail). However, the STM is very sensitive and not all physical activity can be controlled. For instance, if the sample is tilted at an angle there appears to be a smooth transition from dark to light. My responsibility for this summer has been to help develop software that will filter scans in order to account for erroneous activity.

Image corrected using plane and best-fit line subtraction.

Possible porphyrin on Au(111) @ 2.75V, 0.5 nA and  $135.3 \times 135.3 \text{ Å}^2$

Image corrected using offset and best fit line subtraction

Possible porphyrin on Au(111) @ 2.75V & 0.5 nA &  $400 \times 400 \text{ Å}^2$

**Results**

Work on nanomachines using functionalized porphyrin is still in its beginning stages. Preliminary data indicates that porphyrin tends to absorb in herringbone corners, as seen in the above figures. This observation is complex with other researchers.

The next step would be to continue depositing porphyrin and viewing how it behaves itself. Once there is a better understanding of this activity research can begin on manipulating the tip as a machine.

**Persistent Pain in Assisted Living Facilities**

C.A. Kemp, BSN, RN, BC; L.L. Miller, PhD, RN; H.M. Young, PhD, GNP, FAAN; S.K. Sikma, PhD, RN

**What We Learned**

Older adults with persistent pain living in assisted living facilities are more likely to have fallen in the previous year and require assistance with mobility.

<b>Background</b>		<b>Results</b>		<b>Discussion</b>																																																																																																	
<ul style="list-style-type: none"> <li>Persistent pain is a common, debilitating condition among older adults regardless of residence<sup>1</sup></li> <li>Assisted living facilities (ALFs) are the fastest growing segment of the senior housing market<sup>2</sup></li> </ul>		<table border="1"> <caption>Data for 'Needs Help with ADL Function'</caption> <thead> <tr> <th>ADL Function</th> <th>Pain Group (n=62)</th> <th>Non-Pain Group (n=64)</th> </tr> </thead> <tbody> <tr><td>Bathing</td><td>65%</td><td>61%</td></tr> <tr><td>Dressing</td><td>42%</td><td>34%</td></tr> <tr><td>Feeding</td><td>18%</td><td>14%</td></tr> <tr><td>Toileting</td><td>24%</td><td>21%</td></tr> <tr><td>Medication</td><td>78%</td><td>82%</td></tr> <tr><td>Mobility<sup>1</sup></td><td>52%</td><td>37%</td></tr> </tbody> </table> <p>p=0.05</p>		ADL Function	Pain Group (n=62)	Non-Pain Group (n=64)	Bathing	65%	61%	Dressing	42%	34%	Feeding	18%	14%	Toileting	24%	21%	Medication	78%	82%	Mobility <sup>1</sup>	52%	37%	<ul style="list-style-type: none"> <li>Prevalence of persistent pain in sample (59%) matches prevalence of persistent pain in other studies with older adults and residents<sup>3</sup></li> <li>All residents required assistance with 1 to 2 ADLs on average; however, residents in the pain group required significantly more assistance with mobility<sup>4</sup></li> <li>50% of residents in pain group fell in past year compared with 41% in non-pain group, although difference was not significant</li> </ul>																																																																												
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<b>Purpose &amp; Aims</b>		<table border="1"> <caption>Data for 'Analgesic Orders'</caption> <thead> <tr> <th>Analgesic Type</th> <th>Opioids</th> <th>Non-opioids</th> <th>Both</th> <th>Non-analgesic orders</th> </tr> </thead> <tbody> <tr><td>Opioids</td><td>38%</td><td>0%</td><td>0%</td><td>0%</td></tr> <tr><td>Non-opioids</td><td>0%</td><td>52%</td><td>0%</td><td>0%</td></tr> <tr><td>Both</td><td>0%</td><td>0%</td><td>30%</td><td>0%</td></tr> <tr><td>Non-analgesic orders</td><td>0%</td><td>0%</td><td>0%</td><td>32%</td></tr> </tbody> </table>		Analgesic Type	Opioids	Non-opioids	Both	Non-analgesic orders	Opioids	38%	0%	0%	0%	Non-opioids	0%	52%	0%	0%	Both	0%	0%	30%	0%	Non-analgesic orders	0%	0%	0%	32%	<b>Next Steps</b> <ul style="list-style-type: none"> <li>Examine correlations among falls, mobility, and analgesic orders in assisted living residents</li> <li>Describe changes in analgesic orders over 6-month period of parent study</li> <li>Examine impact of analgesic order changes on number of falls and assistance with mobility</li> </ul>																																																																								
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# A Life of Quality?

Systematic review and meta-analysis of interventions relevant to quality of life for persons with intellectual disabilities and dementia

<b>Background</b>		<b>Key QOL Domains</b>	
<p>Shifts in population, life expectancy, and associated prevalence rates have brought attention to services for persons with intellectual disabilities (ID) and dementia, which are ill-prepared to meet growing needs.</p> <p><b>Aim</b></p> <p>Synthesis of ID literature in order to assess: 1) the effectiveness of psychological interventions with QOL-related outcomes, and 2) their relevance for persons who are aging with dementia.</p> <p><b>Methods</b></p> <p>Use of a QOL conceptual framework with targeted domains/indicators (Schalock &amp; Verdugo, 2002).</p> <p>Electronic and hand searches to uncover published studies spanning 25 years from databases, journals, conference proceedings, reference lists, etc.</p> <p>Study selection, quality assessment, and data abstraction undertaken by two independent reviewers.</p> <p>Narrative synthesis of studies and fixed/random effects meta-analyses by classified QOL domain.</p>		<p>The diagram illustrates the Key QOL Domains as concentric circles. The innermost circle is labeled "Physical &amp; Emotional Well-Being". Surrounding it is a ring labeled "Rights". The outermost ring is labeled "Personal Development, Material Well-Being, &amp; Self-Determination". Inside the outer ring, there are two small photographs: one of an elderly man and one of a person in a wheelchair.</p>	

A dissertation funded by the John A. Hartford Doctoral Fellows Program in Geriatric Social Work, Administered by the Gerontological Society of America

# WHEN BAD THINGS HAPPEN TO OLDER PEOPLE:

## THE ROLE OF INTERVENING EVENTS ON THE DEVELOPMENT OF DISABILITY

Thomas M Gill MD, Heather Allore PhD, Theodore R Holford PhD, Zhenchao Guo PhD Yale University School of Medicine

### WHAT WE LEARNED

Illnesses and injuries leading to either hospitalization or restricted activity represent important sources of disability for community-living older persons, **regardless** of the presence of physical frailty.

These intervening events may be suitable targets for the prevention of disability.

### BACKGROUND

A more complete understanding of the disabling process would likely facilitate the development of interventions aimed at preventing disability among community-living older persons.

### OBJECTIVES

To evaluate the relationship between intervening events and the development of disability

To determine whether this relationship is modified by the presence of physical frailty

### METHODS

Prospective study of 754 nondisabled, community-living persons, aged 70+ years

Categorized participants into two groups according to the presence or absence of physical frailty, which was defined on the basis of slow gait speed

Followed participants with monthly telephone interviews for up to 5 years

- to determine the occurrence of disability
- to ascertain exposure to intervening events, which included illnesses and injuries leading to either hospitalization or restricted activity

### RESULTS

Kaplan-Meier Curves for Development of Any Disability, Persistent Disability, and Severe Disability According to Presence of Physical Frailty at Baseline

Table 3. Association Between Proximate Intervening Events and Disability Outcomes According to Physical Frailty at Baseline

Proximate Intervening Event	Level of Baseline Physical Frailty	Any Disability			Multivariable Hazard Ratio*
		Persistent Disability	Severe Disability	Persistent and Severe Disability	
Hospitalization	All participants	60	44	132	
	Physically frail	34	32	932	
	Not physically frail	117	73	261	
Restricted activity only	All participants	5.1	3.3	7.3	
	Physically frail	4.1	3.3	5.2	
	Not physically frail	6.6	2.9	13	

\*All values are statistically significant at P < .001

Table 1. Baseline Characteristics of Study Participants

Characteristic	Total (n=754)	Physical Frailty (n=202)	Nonfrail (n=552)	P Value
Mean age, years	76.5 ± 4.7	84.4 ± 5.0	70.6 ± 4.0	<.001
Female sex	438 (57.8)	112 (55.5)	326 (58.8)	.60
Years response while alive (n=754)	20.6 ± 9.7	20.0 ± 9.7	20.6 ± 9.7	.001
Years education, years	12.3 ± 2.8	11.1 ± 2.9	12.3 ± 2.8	.001
Charlson comorbidity index	1.6 ± 1.2	2.3 ± 1.2	1.6 ± 1.2	.001
Depressive symptoms (n=754)	61 (8.1)	56 (27.7)	5 (0.9)	<.001

Table 2. Factors Associated with Development of Any Disability

Factor	Univariate Hazard Ratio	Hazard Ratio 95% CI	P Value
Age	1.02	1.02 (1.01, 1.03)	<.001
Female sex	1.1	0.93 (0.91, 0.95)	.57
Years response while alive	0.9	0.86 (0.83, 0.89)	.14
Years education	1.0	0.96 (0.94, 0.98)	.66
Charlson comorbidity index	1.1	1.04 (1.02, 1.06)	.08
Depressive symptoms	1.3	1.03 (1.01, 1.05)	.03
Physical frailty	2.2	1.89 (1.77, 2.00)	<.001
Proximate intervening events			
Hospitalization	6.6	49.7 (47.0, 51.9)	<.001
Restricted activity only	5.1	3.68 (3.57, 3.80)	<.001
Both hospitalization and restricted activity	1.0	0.93 (0.91, 0.96)	.66
Restricted activity only	1.0	1.03 (1.01, 1.05)	.22

# Adapting Five Key Social Instruction Strategies to the CS Educational Environment

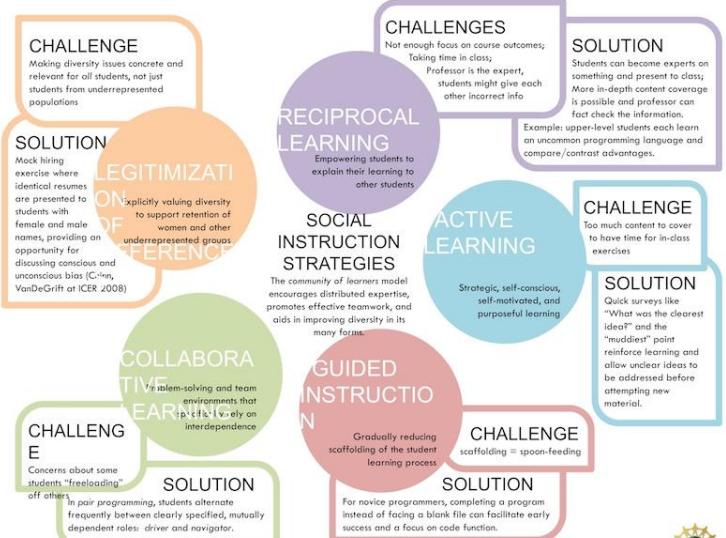
Denise Wilson, Ken Yasuhara, Ryan Campbell • University of Washington  
Rebecca Bates, Rachel Sear • Minnesota State University Mankato  
Elaine Scott • Seattle Pacific University



## WHY SOCIAL INSTRUCTION?

Social instruction addresses the changing needs of CS and STEM students in an economy driven by rapid technological innovation and globalization. Information and innovation are now transmitted at a rate beyond the capability of individual learners; globalization has led to more and more diversity in the classroom and the workplace.

To prepare students for these demands, CS and STEM curricula have shifted away from a "lone ranger" approach to learning in favor of collaborative, holistic and interdisciplinary learning models which leverage teams' collective brainpower, strengths and expertise while fostering and valuing diversity. The more complex the activity, the more team skills are required by the participants. Social learning strategies are key to addressing the demands of 21st-century CS and STEM education.



We gratefully acknowledge the National Science Foundation for their support of this work under the CCLI program (Awards 0817825, 0816642, and 0814802).



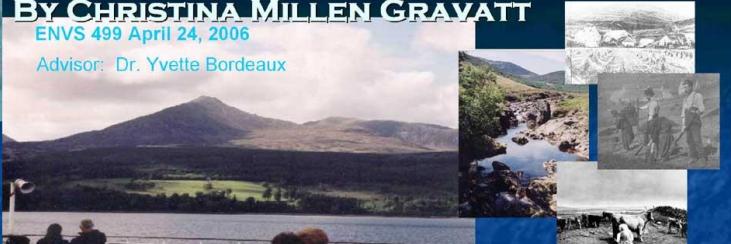


**Abstract**

The Isle of Arran, known as Scotland in Miniature, is located in the Firth of Clyde off Scotland's West Coast. Geologically, the isle is divided by the Highland fault leaving the northern half of the island dominated by granite peaks with marginal farming areas. Agriculture has been described "as severe change on the landscape". The construction of farmhouses, roads, fencing, dykes, out-buildings, bothies, pigsties, wells, etc, have had a profound effect on the environment and landscape.

Eighteenth and early nineteenth-century agricultural practices were conducted in a communal society that used two types of planting methods, lazy beds and run-rigs.

**By CHRISTINA MILLEN GRAVATT**  
ENVS 499 April 24, 2006  
Advisor: Dr. Yvette Bordeaux



**LAND AND MAN**  
**The Effects of Eighteenth & Nineteenth Century Agriculture on the Northern Half of the Scottish Isle of Arran**

**Conclusion**

Today the landscape has lost riparian zones, soil, and nutrients, while experiencing significant changes in hydrological patterns altering the shape of the landscape and it is the landscape that entices tourism, now the mainstay of the island's economy. These tourists will form the next major changes to the landscape of the Isle of Arran.

**Please Don't Measure My "Burden"**  
**Duty and Satisfaction Are What Matter to Me**

Lyda C. Arévalo-Flechas PhD, RN  
The University of Texas Health Science Center at San Antonio

HGTI  
Hartford Geriatric Nursing Initiative

**What We Learned & Where We Are Headed**

Measures for burden in the majority population may not assess the same concept in Latinos/Hispanics and other populations. The best measures of the impact of caregiving duties and the interventions to minimize negative effects may lie in concepts that express the impact more positively.

Duty fulfillment and satisfaction are proposed as positive perceptions of what Latino/Hispanic Alzheimer's caregivers experience. Further qualitative exploration of these concepts will provide the basis for instruments to measure these two types of caregiver perception not considered in current theoretical models.

**CULTURALLY INFORMED CONCEPTUAL ORIENTATION OF CAREGIVING**

**Background**

- Burden is not the best way to describe the impact of caregiving on Latino/Hispanic caregivers of a relative with Alzheimer's disease.
- Current models do not consider the role culture and language play in how caregiving is perceived.
- Spanish lacks a word that translates to the English "burden." The Spanish word "carga" translates only to a physical load.
- Neither "burden" nor "carga" are culturally competent words to accurately describe Latino/Hispanic caregiving.

**Assumptions**

- Each culture gives people a way to see the world (Spradley, 1979). This worldview is passed from one generation to the next primarily through language.
- More than a way to communicate, language also creates and expresses cultural reality (Spradley, 1979). Ways of perceiving, categorizing, and thinking about one's world result directly from one's language.
- The linguistic (cognitive) categories that make up one's reality and define actions are meanings (Krauss, 2005). Meaning is essential to human life (Frank, 1963). Meaning making allows us to make sense of our lives and experiences, as humans.

Research supported in part by the John A. Hartford Foundation Building Academic Geriatric Nursing Capacity Program. Special thanks to Association Colombiana de Alzheimer and the caregivers who participated in the study.

## Research in the Polar Regions

The Arctic and Antarctic have interested for many types of researchers for centuries. Today, they continue to do so, while the Arctic and Antarctic still attract new ones. The Arctic and Antarctic regions are changing as a result of global warming and affect the global climate. Biologists research the plants and animals, which are specially adapted to the polar regions and are some of the first in the world to be affected by climate change. Social science researchers study the economic and political influences on the regions. Geologists research the rocks and minerals found in the regions. Other types of researchers in the polar regions include geologists, geographers, astronomers, oceanographers, and climatologists.

How do researchers study the polar regions? They live in or visit the regions and observe and take measurements from towns, permanent research stations, temporary field stations, or ships. Researchers can also collect data from satellites and from automatic ground instruments that monitor conditions in remote locations.

**Traditional Arctic knowledge**

Humans and scientists share information about sea ice to help in the development of modern scientific knowledge. Traditional Arctic knowledge is the knowledge of the local environment (right) with a focus of a community's history and culture. Modern science adds to this knowledge by providing a broader perspective. Scientists and indigenous people of the Arctic are learning to work together to protect the environment. By sharing knowledge, scientists and indigenous people can better understand the environment.

**Greening the Arctic**

The Arctic is warming faster than the rest of the world. Data collected from automated instruments in the Arctic is used to understand the changes in the Arctic. The Arctic is "greening," with denser vegetation and longer growing seasons.

**How to tell if an ice sheet is growing or shrinking**

Most of Greenland and most of Antarctica are covered by thick layers of ice called ice sheets. Currently, warmer ocean waters and melting icebergs are causing ice sheets to shrink. Researchers are using satellite imagery, measurements, and computer models to find out more about these negative changes.

**An Antarctic discovery, the ozone hole**

The ozone hole is a dramatic drop in atmospheric ozone levels over the South Pole each year during autumn. The hole is caused by allowing more ultraviolet radiation to reach Earth's surface. The hole is now smaller than it was in the early 1990s. It is important to reduce these chemicals such as chlorofluorocarbons (CFCs) that damage the ozone layer because the hole has been projected to decrease in size over the next few decades.

**POLAR YEAR**

International Polar Year 2007-2008 is a once-in-a-lifetime opportunity to study the polar regions. It is a joint international effort to study the polar regions in a coordinated way. It is the largest scientific endeavor ever undertaken.

**What you hear is  
what you get?**

**Imjuzz  
Music**

Investigating Absolute and Relative Pitch  
in L2 Phonology

Moving on from previous studies linking language learning ability to musical ability, my research takes a more specific look at the musically trained ear and its potential role in second language pronunciation.

This is fundamentally based on the hypothesis that more accurate auditory perception skills are a key to more precise production abilities, thus leading to more native sounding pronunciation and intonation in the second language.

**[spɪ:tʃ]  
Speech**

Stefanie Anja Wichmann  
PhD student in Music Technology  
at the Department of Electronics,  
Interdepartmentally linked to the  
Department of Language and Linguistic Science  
and the Department of Music.

THE UNIVERSITY of York

**Who'd live in a house like this?**

" WANTED. Families, particularly women and children to work in the Textile Mill. They may be provided with comfortable houses..."

(from an advert placed by mill owner Thomas Evans in 1782)

Home of the first water-powered cotton mill, the Derwent Valley in Derbyshire presents a fascinating insight into the world of textile workers living within purpose-built communities.

Employees were provided with housing, schooling and a weekly refuse collection .... but at what cost?

Did these workers live in an industrial utopia or in Blake's "dark satanic mills"?

Through the archaeological examination of building design; we can turn bricks and mortar into an understanding of the economic, social and cultural lives of these communities.

Join me as we go through the keyhole to examine the homes of the working-class.

Suzanne Lilley  
Department of Archaeology

THE UNIVERSITY of York

KU LEUVEN

## Questions?

- Contact:

[Frank.VanPuyvelde@icts.kuleuven.be](mailto:Frank.VanPuyvelde@icts.kuleuven.be)

