



Changing SAS discipline into the life science sector



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Agenda



- ▶ Getting your first SAS job
- ▶ SAS in the life science sector
- ▶ Moving into the life sciences
- ▶ Working as a statistical programmer
- ▶ SAS certifications
- ▶ Recommended reading
- ▶ Summary

Getting your first SAS job



Paths into SAS

- ▶ University degree utilising SAS, e.g. maths and statistics, life sciences, computer science
- ▶ Graduate business / financial analysts
- ▶ Statistics / analytical related job that utilises SAS
- ▶ Luck!



Getting your first SAS job

SAS Career Types

- ▶ Life sciences (e.g. pharma, CRO, biotech)
- ▶ Finance (analysts / credit scoring)
- ▶ Retail (business analysts / data analysts)

Things in common

- ▶ SAS!
- ▶ Analytical / mathematical thinking
- ▶ Programming

Differences

- ▶ Finance / retail = more analytical, less programming
- ▶ Life sciences = more programming, less analysis



Getting your first SAS job

Career enhancement

- ▶ Core competence in SAS
- ▶ Confidence in your abilities
- ▶ Confidence in yourself
- ▶ Awareness of what you can offer with SAS skills
- ▶ Awareness of other SAS industry sectors and jobs

SAS in the life science sector



Why life sciences offer an interesting and rewarding career

- ▶ Programming
- ▶ Statistics
- ▶ Science related
- ▶ Using and interpreting data
- ▶ Tables, listings, figures, graphs
- ▶ Variety of highly professional people, MDs, scientists, researchers, statisticians, programmers

Moving into the life sciences



Transferrable skills

- ▶ SAS programming
- ▶ Business and analytical skills
- ▶ General IT skills
- ▶ Professional and dedicated team environment

- ▶ Is this enough.....?



Moving into the life sciences

What employers are looking for

- ▶ Previous clinical trials experience
- ▶ Maths / statistics / computer science / life sciences degree
- ▶ At least an undergraduate statistics level
- ▶ If you don't have these it's difficult to convince an agency / employer why you are suitable to work in life sciences
- ▶ Is it possible.....?
- ▶ What can you do.....?



Moving into the life sciences

It's not just about SAS...

- ▶ Highly regulated environment
- ▶ GCP
- ▶ CDISC standards
- ▶ QC and validation (double programming)
- ▶ Structured and organised
- ▶ Detailed documentation / code comments



Working as a statistical programmer

Required knowledge

- ▶ Clinical trials
 - ▶ Why / what for
 - ▶ Phase I, II, III, etc
 - ▶ Type of trials, equivalence / superiority / crossover
 - ▶ Hypothesis testing, randomization, sample size

- ▶ Ways of working
 - ▶ Study protocol
 - ▶ Case Report Form (CRF)
 - ▶ Statistical Analysis Plan (SAP)

Working as a statistical programmer



Required knowledge

▶ CDISC



- ▶ Data standards
- ▶ Data domains
- ▶ SDTM / AdAM
- ▶ FDA and other organisation requirements

▶ Statistics

- ▶ Fundamental understanding
- ▶ SAS statistical and graphical procedures
- ▶ T-Tests, Chi-squared, Fisher's exact

SAS certifications



- ▶ **SAS Certified Clinical Trials Programmer**

- ▶ CDISC
- ▶ GCP
- ▶ Basic statistical procedures

- ▶ **SAS Certified Statistical Business Analyst**

- ▶ Hypothesis testing
- ▶ ANOVA, linear and logistic regression
- ▶ Advanced statistical procedures





Recommended reading

- ▶ SAS Programming in the Pharmaceutical Industry, Jack Shostak
- ▶ Clinical Trials: A Practical Guide to Design, Analysis, and Reporting; Duolao Wang, Ameet Bakhai
- ▶ Introducing the CDISC Standards: New Efficiencies for Medical Research; Amanda J. de Montjoie
- ▶ Validating Clinical Trial Data Reporting with SAS; Carol Matthews & Brian Shilling

Summary



What can you do to improve your chances of working in the life science sector?

- ▶ Obtain SAS certifications (Clinical Trials Programmer)
- ▶ CDISC
- ▶ Clinical trials – background knowledge / research
- ▶ Statistics – fundamental knowledge of key methods
- ▶ Know your needs and be realistic

And finally.....



Statistical / clinical trials programming:

- ▶ Exciting
- ▶ Challenging
- ▶ Huge scope for learning
- ▶ Meet dedicated professionals from many disciplines
- ▶ Very motivating