

# ACM International Collegiate Programming Contest

Bruce Merry

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# What is this ACM ICPC?

- Team competition: 3 students from the same university
- Usually 6 programming problems (examples later)
- 5 hours to solve as many of them as you can!
- Problems can be solved in Java or C/C++
- Why enter?
  - Free food!
  - The challenge
  - Learning while having fun
  - Great on CV if you do well
  - Overseas trip if you win



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# Fun in the lab



# Competition structure

- Southern African regional
  - Around 50 university teams from SA
  - A few teams from rest of Africa
  - Compete at local sites
- World Finals
  - About 100 teams from round the world
  - On-site in Warsaw, Poland
  - Winning team from regional goes



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- Amongst others, the two main eligibility criteria are:
  - began post-secondary studies in 2007 or later, *OR*
  - born in 1988 or later
- Special circumstances if you don't meet the above, but have *not* completed eight semesters of full-time study
- Detailed eligibility decision tree online



- Problems are typically algorithmic in nature
- Example: Find the largest prime in a list of numbers up to  $2^{32}$
- Example: Find the first digit of  $B^N$ , given  $1 \leq B \leq 10$ ,  $1 \leq N \leq 1\,000\,000$
- Example: Find the optimal angle to launch a cannonball to pass through a gap in a wall



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- Submissions automatically marked
- Judge's response is one of: Correct, Incorrect, Time-limit exceeded, Runtime error, Compile error
- Just *one* test case wrong gets you an incorrect answer!
- Correct answer gets you a color-coded balloon
- Teams ranked by number of problems solved
- Ties broken using “time penalty”



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# Team Strategy

- Interesting twist in the rules: teams work together on a single computer!
- This leaves lots of room for interesting team make-up and team strategy
- If you just want to come have fun, then team up with two friends
- If you want to compete for the win, then this is half the battle
- Winning teams usually have at least one Computer Science and at least one Maths team member
- Not everyone on the team has to program
- Splitting up the problems, not all focusing on the same problem at once, is a skill that requires experience





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- **Wed 17/8: introduction session**
- Tue 30/8 16:00–18:00: basic training
- Wed 28/9 16:00–18:00: basic training
- Sat 27/8 10:00–16:00: advanced training
- Sat 10/9 10:00–16:00: advanced training
- Sat 24/9 10:00–16:00: advanced training
- Sat 15/10: contest

A Google Calendar is available



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# What Now?

- Bookmark `http://acm.cs.uct.ac.za/`
- Sign up to the `acm2011-announce` mailing list
- Join the Facebook group (`acmicpc`)
- Register yourself on  
`http://acm.cs.uct.ac.za/register`
- Look around and try find team members
- Register your team
- Come to training and to algorithm circle



# Who to talk to

- Lyndsay Lawrence
- Bruce Merry
- Marco Gallotta
- Bertus Labuschagne
- Maciek Stankiewicz





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