

Morning Session Day 1

Session Start¹

- Introductions
 - Instructor intro
 - Attendee introductions
 - Why are you here?
 - What do you hope to learn?
 - Do you have any special needs?

- Housekeeping
 - Using the syllabus as a guide
 - Rules for interruptions (cell phones verboten)
 - How to use the handouts and presentation materials
 - Note taking - - there will be a test at the day's conclusion

- Review course objectives
 - Course goals
 - Overview of the day

Color Identification

- What color is this? (*Hands-on #1*)
 - Write color description and pass forward
 - Shuffle descriptions and pass out
 - Use description to identify color

- How do people try to correct color in the real world
 - Roundtable slides
 - At the paint store
 - In the press room

- Why do I respond to color the way I do?
 - Inherited, learned, geographical factors, etc.

- Does my eye have limitations?
 - Retinal fatigue
 - Color memory
 - Background effects

Color Theory Workshop

- One artists solution – Munsell
 - Munsell’s color description (words)
 - Let’s play Munsell (*Hands-on #2*)

Morning Break

Color Definition – What is Color?

- Light
 - Spectrum & speed
 - Different lights = different energy
 - Illuminants
- Object
 - Why is red, red?
 - Objects are reflectors
- What is metamerism (*Hands-on #3*)
- Observer
 - How does the eye work
 - Rods & cones
 - How about an instrument?
- Color models
 - Additive -demonstrate with lights (*Hands-on #4*)
 - Subtractive -demonstrate with finger paint

Lunch on your own

Class Reconvenes In One Hour!

Afternoon Session Day 1

Color Control

- Density
 - What is it?
 - How do I use it?

- $L^*a^*b^*$
 - What is it?
 - How do I use it?

- $L^*C^*h^\circ$
 - What is it?
 - How do I use it?

- Instrumental measurement (*Hands-on #5*)
 - Measure density (no difference)
 - Visual assessment (big difference)
 - Measure color $L^*a^*b^*$ (big difference)

- Which method is best?
 - MacAdam's ellipsoids
 - Introduce CMC
 - Introduce CIE94
 - The eye vs. $L^*a^*b^*$, $L^*C^*h^\circ$, CMC, CIE94
 - Screen grab of each tolerance

Afternoon Break

Color Theory Workshop

Color Management

- The artists creation
 - Follow the color from creation to completion ...
- Ends in production
 - Vehicle paint
 - Interior plastic
 - Interior fabric/leather
 - Printed displays
 - Printed advertisement
- Measured how?
 - Different instruments, different answers (*Hands-on #6*)
 - Compare readings from hands-on #5
 - Different instruments, different ill/obs, different results
- Measure vs. the eye
 - Limitations of the eye

Color Manufacturing

- Why doesn't it match?
 - Process variation
 - Raw materials
- Application methods
 - Real world situations
- Customers issues
- Wrap up and test/review

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Morning Session Day 2

Session Start2

- Review course objectives
 - We will learn the following:
 - Instrument geometry
 - Equipment setup and serial interfacing
 - Launching the software; selecting startup configurations
 - Mastering the data hierarchy: parent/child relationships
 - Creation and maintenance of standards
 - Sampling techniques
 - Screen and data manipulation and interpretation
 - Advanced standard / sample data manipulation: notes, tags, etc.
 - Screen customizations
 - Importing / exporting / transferring /printing
 - Managing a QA2000 server / networking
 - Passwords and security options
 - How and when to backup the database!
 - Final test
 - Course evaluation
 - Dismiss

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Instrument Geometry

- A discussion of instrument geometries (which are used for what?)
 - 0/45's
 - 45/0's
 - Sphere's
 - SPIN
 - SPEX
 - MA's
 - 3 angle (50 series)
 - 5 angle (60 series)

Interfacing

- Interfacing instruments to PC's
 - Com Ports (as opposed to USB's & parallel's & such)
 - Bits, baud, & handshake
 - Cabling / adaptors / POWER SUPPLIES!!!
 - Instrument I/O options

Setting up the equipment³

- Equipment setup / launch software
- Quick WindowsTM review

Begin QA-2000 instruction

- Selecting a database (remember geometry?)
- Calibrating the instrument(s)
 - How, when, where, why
 - Warnings, caveats, verifying your success
 - Instrument maintenance and regular certification

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QA-2000 hierarchy & data relationships

- Who depends on what and why!
 - Customers
 - Standards
 - Tolerances
 - What's possible?
 - Notes and tags
 - Samples
 - Notes, tags, and Lot ID's
 - Color difference data
 - Pass / Fail Status

- Organizing your standards for greatest efficiency
 - Network considerations
 - One "folder" or many & why?

AM Break⁴

Creation of Standards⁵

- Think before you start
 - Illuminants & Observers
 - Colorimetric functions & tolerancing methods

- Running the WizardTM
 - Explanation of the assorted options
 - Manual, measured, copy/paste, etc...
 - To average or not to average
 - Establishing tolerances
 - Setting system defaults
 - Implications if you later change your mind
 - What is 555?
 - Notes & Tags
 - Proving repeatability
 - Sample preparation, presentation, & preservation!!!

- Backups – It's your data!

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Measuring Samples

- To Wizard™ or not to Wizard™?
 - Explanation of the assorted options
 - Manual, measured, copy/paste, etc...
 - To average or not to average
 - Notes & Tags & Stuff
 - Auto-tagging
 - Auto-Lot ID
 - Proving repeatability
 - Sample preparation, presentation, & preservation!!!

Playing with the Screens – Data Interpretation

- View options, right-mouse functions; designing your workspace
 - Trend views
 - Tolerance views
 - Pass / Fail
 - $L^*a^*b^*$, $L^*C^*h^\circ$, $CMC_{2:1}$, CIE94, etc.
 - Managing the “Control Panel”
 - User defined control options
 - Densitometric options

Independent Practice

- Create standard, measure samples
 - Use **Exercise A**
 - Discussion

Class Reconvenes In One Hour!

Afternoon Session Day 2

Advanced Software Functions

- Downloading standards to the instruments
 - What gets sent down the wires
 - Taking remote measurements
 - Follow **Exercise B**⁶
 - How is this useful?
 - What is the instrument telling me?
 - Viewing the collected data
 - Advanced download options
 - Auto-selecting standards
 - Projects & Jobs (selected instruments ONLY)
 - Caveats - - DO ONLY WHILE POWERED FROM AC ADAPTOR!

- Uploading collected samples⁷
 - Notes & Tags & Stuff
 - Where does the data go?
 - Caveats - - DO ONLY WHILE POWERED FROM AC ADAPTOR!
 - Viewing your remote data

Questions about Exercise B

- Who can use download & upload
 - Success stories

Advanced Standard Manipulation

- Alternate Standards
 - Copy/paste, average the current set, manual entry, etc.
 - Using standard descriptions
 - Versioning of standards

- Advanced tolerancing tools
 - Visually editing tolerances
 - Using “Accept / Reject”
 - Multiple tolerancing
 - Instrument caveats – download 1st only

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More Tagging Exercises

- Using the power of notes and tags to identify and select data
 - Filtering your data
 - By Tags
 - By Date, Time
 - By Color
 - By Customer
 - By Accept / Reject Status
 - By all of the above at the same time!
 - Finding Lot ID's

Afternoon Break⁸

Cool Stuff – Customizing the Toolbar

Managing your Data

- Transfer Out
 - Data transfer formats
 - What's in a MIF?
 - What's an XTF?
 - Why two types?
 - Software compatibility issues!!!
 - Filtering the transferred data
 - Remember Notes & Tags & Stuff
 - What can I transfer?
 - Standards ONLY
 - Standard (singular) & Samples
 - Lots of Standards & Samples at the same time
 - Do **Exercise D**
 - Paths & filenames & such

- Backups – Here's a chance to preserve all your hard work

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- Transfer In
 - Adding tags to the incoming data
 - Updating (or not) existing standards & customers

- Exporting
 - CSV (Character Separated Values)
 - How can this be used?
 - Export options...

- Printing
 - Standard report formats
 - Screen Grabs
 - Caveats - -Video drivers & such
 - General
 - Conformance
 - Complete
 - Custom reporting
 - Crystal reports (not supplied)

- ODBC
 - What's possible, what's not
 - Database limitations

- ColorMail
 - Various mail systems
 - POP, SMTP, Lotus Notes, MS Exchange, etc.

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Networking the X-RiteColor Master software

- Basic server requirements⁹
 - Hardware
 - 200 MHZ Pentium with 64 megs of RAM (Minimum)
 - Software
 - Windows NT4 with Service Pack 4 or higher
 - NetBios / TCP/IP communications protocols
 - Installing
 - Administration rights

- Using the “**Xadmin**” utility (Options \ Administrative)
 - Database permissions
 - Who can do what, when, and where!
 - Database management
 - The REAL Backup tools!!!!!!!
 - Repair kit
 - Creating and importing (more) databases
 - User management
 - User names and passwords
 - Caveat – Original password is “password”
 - Auto-tag feature using User Name!
 - Logging on to a secure QA2000 system

- Web Edition
 - Differences from the LAN version
 - Advantages
 - Disadvantages
 - Licensing options
 - Demo Server

X-RiteColor Master QA Workshop

Test & Final Q&A... Wrap-up

- Test
 - Use Exercise E

- Filling out the syllabus

- Course evaluation

- Getting HELP from X-Rite!
 - Using the QA-2000 Help
 - Context help
 - Printing the help screens
 - www.x-rite.com
 - Support / Helpdesk
 - Applications support line
 - 1-888-826-3046 option 2
 - casupport@x-rite.com

¹ Instruments should be set up before class with a variety of ill/obs settings.

² Computers are tested but not yet placed on the student's tables.

³ PC's and instruments are handed out to the class.

⁴ Start timer on screen to force an on-time return!

⁵ ColorCurve (TBD) handouts provided

⁶ Create an assortment of standards – “TableTop”, “North Wall”, “Carpet”, “Back of Chair”...

⁷ Exercise B continues

⁸ Start timer on screen to force an on-time return!

⁹ Quick and dirty... there's no way to do this as an exercise!