Lab Quiz #2:
- Merrifield resin synthesis
- di-tert-butyl dicarbonate
- DCC

Exam #3:
- amino acids
- D vs L
- pI + acid/base properties
- Electrophoresis
- Ion exchange chromatography (ninhydrin) (Beer's law)
- Synthesis amino acids
- Protein structure
- Sequencing - Edman degradation, methionine

A few more amino acids:
- L-methionine
- L-tyrosine
- indole
- L-tryptophan

Synthesis of amino acids
Strecker synthesis

\[
\text{R-CH}_2\text{H} + \text{H}_2\text{C-NH}_2 \xrightarrow{\text{HCl}} \text{R-CH}_2\text{CH(NH}_2\text{)}\text{C}=\text{O} + \text{H}_2\text{O}
\]

1) NaBH_4
2) \text{O}_2\text{H} + \Delta
3) H^+

\[
\text{CH}_3\text{OC}=\text{O} \xrightarrow{\Delta} \text{CH}_3\text{OH} + \text{CH}_3\text{COOH}
\]

(Enantiomers)
The hydroxy acids shown above are chiral compounds, which means they cannot be easily physically separated since their physical properties are identical (with the exception of optical rotation, which cannot be used to separate them). If a chiral auxiliary (extra molecule) is reacted with the two acids, diastereomers are formed. Since diastereomers have different physical properties, they can be separated. Once the original carboxylic acids are recovered, they will have been effectively separated.

Protein structure

\[
\text{10-sequence} \quad \text{the order of amino acids}
\]

Clearance at methionine

\[
\begin{align*}
R & \quad \text{N} & \quad \text{S} \\
\text{K} & \quad \text{N} & \quad \text{S} \\
\text{R} & \quad \text{N} & \quad \text{S}
\end{align*}
\]

\[
\text{cyanogen bromide} \quad \rightarrow \quad \text{rest of poly peptide cleaved at this point}
\]

\[
\begin{align*}
R & \quad \text{N} & \quad \text{S} \\
\text{K} & \quad \text{N} & \quad \text{S} \\
\text{R} & \quad \text{N} & \quad \text{S}
\end{align*}
\]

\[
\text{HCl} \quad \rightarrow \quad \text{rest of poly peptide}
\]

\[
\text{H}_2\text{O} \quad \rightarrow \quad \text{rest of poly peptide}
\]

\[
\text{Next: Chapter 27}
\]