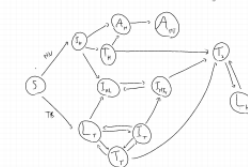
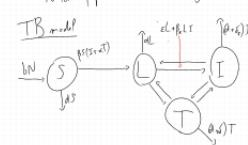
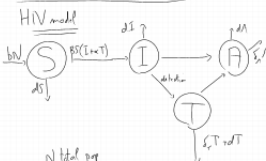


HIV/TB co-infection



$$\begin{aligned}
 S' &= bN - dS - \beta_u SI_u - \beta_e (I_u + \alpha_e T_e) S \\
 &\quad - \beta_h SI_h - \beta_{uL} SI_{uL} - \beta_e SI_e - \beta_e T_e S - \beta_e T_e S \\
 I_h' &= \beta_u SI_u + \beta_{uL} SI_{uL} + \beta_{uL} I_{uL} S + \beta_{uL} T_e S - dI_h \\
 T_e' &= \gamma_e I_h - \alpha_e I_h - dT_e - \sigma_e T_e \\
 A_h' &= \alpha_e I_h - dA_h + \sigma_h T_h \\
 A_{uL}' &= \beta_h A_h (I_{uL} + \alpha_e T_e + I_e + \alpha_e T_e) \\
 L_e' &= \beta_e S (I_e + \alpha_e T_e + I_{uL} + \alpha_e T_e) + \chi T_e \\
 &\quad + \chi_e I_e - \epsilon_e L_e - \gamma_e L_e \\
 I_e' &= \epsilon_e L_e + \gamma_e T_e - dI_e - \chi_e I_e - \gamma_e T_e \\
 &\quad - \beta_{uL} I_e (I_h + T_h + I_{uL} + L_u) \\
 T_e' &= \gamma_e I_e + \gamma_e L_e - dT_e - \gamma_e T_e - \chi_e T_e \\
 &\quad - \beta_T T_e (I_h + T_h + I_{uL} + I_{uL} + T_e) \\
 I_{uL}' &= \beta_{eH} I_h (I_{uL} + T_e + I_e + T_e) - dI_{uL} \\
 &\quad - \epsilon_{uL} I_{uL} \\
 I_{uL}' &= \epsilon_{uL} I_{uL} + \beta_e I_e (I_h + T_h + I_{uL} + I_{uL} + I_{uL}) \\
 &\quad - dI_{uL} \\
 T_e' &= \beta_h T_h (I_{uL} + I_e + T_e + I_{uL}) \\
 &\quad + \gamma_{uL} I_{uL} + \beta T_e (I_h + T_h + I_{uL} + I_{uL} + I_{uL}) \\
 &\quad - dT_e - \gamma_e T_e \\
 L_u' &= \chi_e T_e - \phi_{uL} L_u - dL_u
 \end{aligned}$$